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Railway Age

Founded in 1856

Transportation Library

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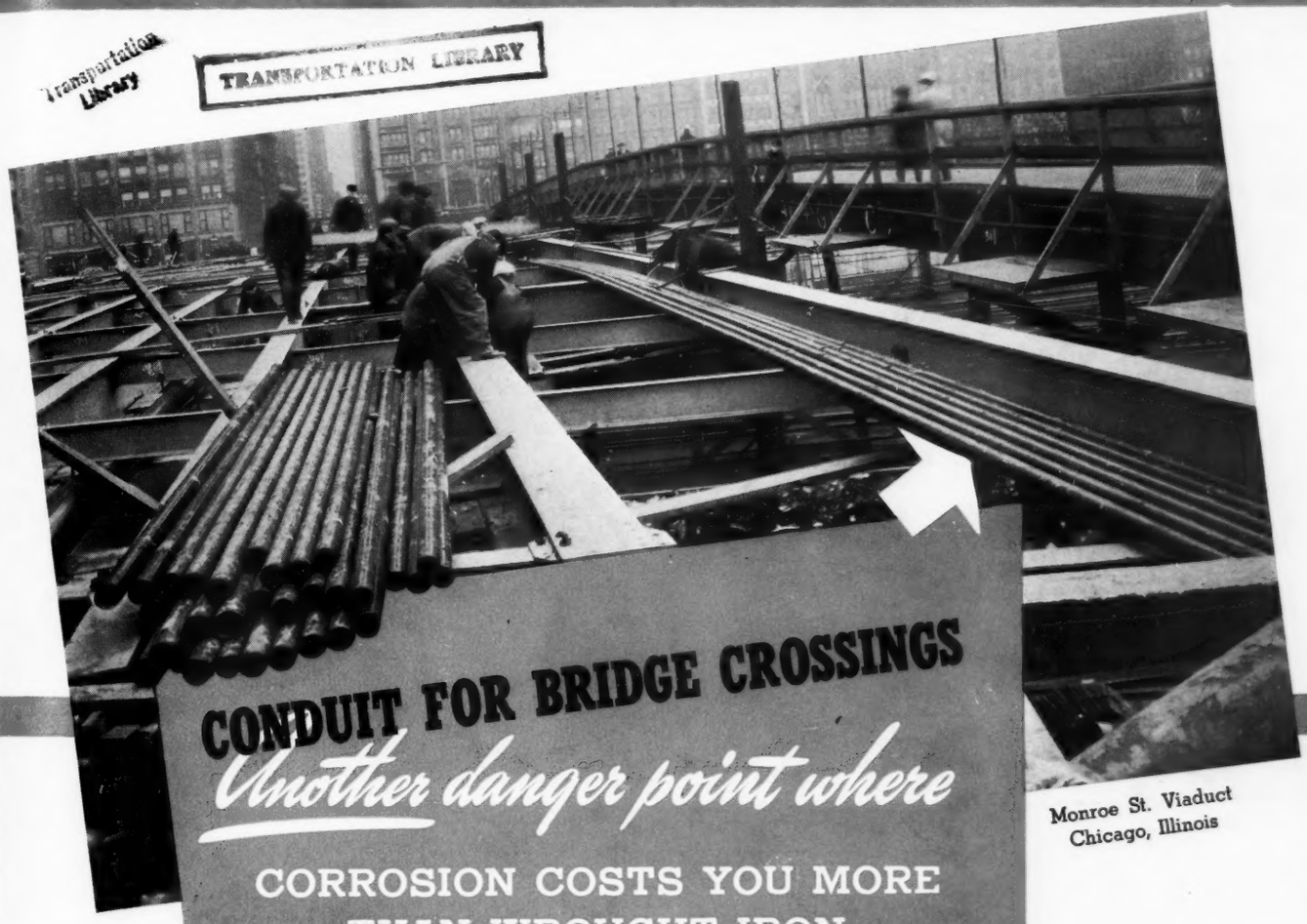


Monroe St. Viaduct
Chicago, Illinois

CONDUIT FOR BRIDGE CROSSINGS

Another danger point where

CORROSION COSTS YOU MORE
THAN WROUGHT IRON

BYERS WROUGHT IRON

Resistance to locomotive gases, as demonstrated in dozens of blast-plate installations, explains wrought iron's increasing use for electrical conduit exposed to similar conditions. In the Monroe Street Viaduct, erected for the Chicago Park District to carry traffic from famous Michigan Avenue to Chicago's lake front over the Illinois Central Railroad tracks, 1900 feet of Byers 3-inch black and galvanized wrought iron pipe was used. An additional reason for installing wrought iron was the vibration caused by railroad traffic, which tends to cause fatigue failure in susceptible metals. Wrought iron is highly resistive to this condition, as has been proven in thousands of locomotive air line piping installations.

Railroads are using wrought iron conduit for many other corrosive applications as well. In 1930, 17,500 feet of Byers 4-inch extra heavy wrought iron pipe was used to carry high-tension lines under the Harlem Ship Canal. Byers Wrought Iron, buried in wet sand and exposed to sea water, was installed by another road in 1934 to dependably carry signal cables. These are only two examples of many uses.

If you have a conduit corrosion problem, in bridges, buildings, signal work or cars, our Engineering Service Department will be very glad to give you data on the performance of wrought iron in similar situations. May we hear from you?

A. M. Byers Co., Pittsburgh, Pa. Established 1864. Boston, New York, Philadelphia, Washington, Chicago, St. Louis, Houston, Seattle, San Francisco.

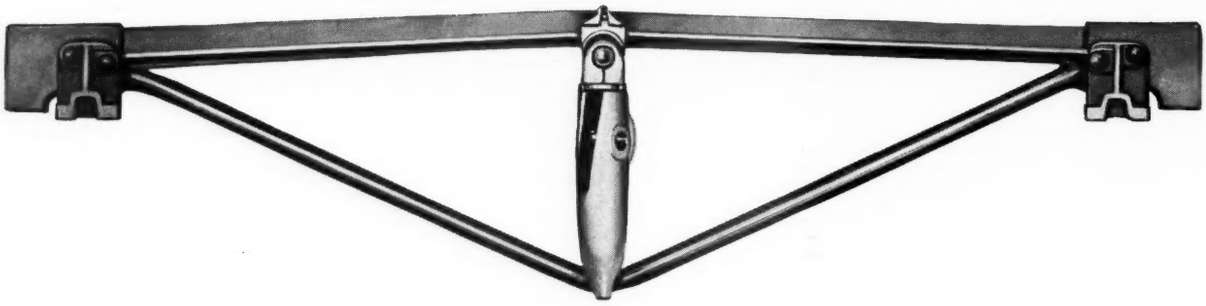
BYERS GENUINE WROUGHT IRON

TUBULAR AND FLAT ROLLED PRODUCTS

Specify Byers Genuine Wrought Iron Pipe for resistance to corrosion and fatigue failure and Byers Steel Pipe for your other requirements

UNIT TRUCK

SIMPLE • SAFE • RUGGED • ECONOMICAL



UNIT Trucks were designed to overcome all of the common failures of the conventional brake rigging.

Unit Truck Side Frames have integral guides protected by wear plates, the top guides being removable to permit interchange with conventional brake beam.

Unit Brake Beams are carried on extended ends protected by wear plates that have 26 square inches of bearing surface, interlocked in the Unit Side Frame and operate on the radial line to the center of the axle resulting in full and even brake shoe wear.

Approved for interchange.

Full information as to licensees authorized to manufacture Unit Trucks will be furnished upon request.

UNIT TRUCK CORPORATION

140 CEDAR STREET **NEW YORK, N. Y.**

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RAILWAY AGE

Will Anti-New Dealers Meet This Clear-Cut Issue?

The New Dealers are obligingly presenting their opponents with an issue for the 1940 National political campaign which, if their opponents will meet it consistently and squarely, can be made to surpass in clarity and availability for public discussion any issue since that of "free silver" in 1896. This issue is that of permanent federal spending on a colossal scale versus expansion of private industry as a means of providing employment for all employable persons at good wages and of producing the necessities, comforts and luxuries required for a high and improving standard of living for all.

Government spending on a huge scale was first promoted by the New Dealers as a means of "priming the pump" of private business and thereby promoting recovery. As a means of "priming the pump" it has completely failed. Government, business and labor estimates agree that after seven years of "spending for recovery" there are still over nine million unemployed; and production, commerce and national income, instead of increasing as formerly, have remained for a decade far below their average levels in the decade ending with 1930.

Public Spending a "Natural" as Campaign Issue

The theory that private enterprise has lost its power of expansion, and that hence huge "government investment" must in future supplement or be substituted for it, has been expounded with ability for some time by Adolph Berle, assistant secretary of state, the last of original brain trusters now in government service. Recently more and more leading New Dealers have been expressing the same view; and it now appears to have been accepted by most or all of them. Heretofore those who have sought to attack the New Deal effectively have found it difficult to lay hands upon any single New Deal policy which they could analyze and anathematize in a way that would be convincing to the public. The New Deal has consisted of numerous policies intended to promote both reform and recovery. That recovery has not even been approached is strong evidence that, as a whole, these policies have been inimical.

But it is hard to make general amateurishness in dealing with economic problems appear a crime, or even a great danger, to a public most of whom are themselves amateurs in considering such problems. And it is mighty hard to make an object of distrust and contumely of a group of persons who have been generous to the unfortunate, even if their generosity has consisted in the use of other people's money. It has, moreover, been almost impossible for anybody to criticize the New Deal attack on business without seeming to identify himself with business leadership responsible for business policies that have not stood too well the light thrown on them by New Deal investigations.

Would Americans Vote for a Stationary Standard of Living?

But in their acceptance of a huge volume of unemployment in private business as a permanent condition, and in their consequent favoring of the perpetuation of huge W.P.A. and P.W.A. programs as the only means of remedying this unemployment, it looks to many anti-New Dealers as if these heretofore politically-wise economic amateurs are putting themselves in a very vulnerable position. Consider the implications of this pessimistic New Deal view. In substance it means that the economic progress caused in this country for a century and a half by private enterprise and investment, and by which average income per capita and the living standards of all classes were steadily raised, has ceased and that private enterprise and investment will never be able to revive it. In other words, it apparently assumes the indefinite continuation of the unprecedentedly bad economic conditions through which we have lived for the past ten years. But a rising standard of living and increasing real wages are impossible under such conditions because, as experience during the last decade has demonstrated, government expenditures for public works and for such other purposes as they have been made, do not increase production per capita of the many things required for a high standard of living.

Although most Americans are not now aware of the fact, it should not be difficult to convince them that ad-

vancing wages and living standards are (1) entirely dependent upon increasing the production of goods per capita and that (2) such increased production per capita results from increased investment in improved machinery on farms and in industry. But, obviously we cannot have any such increase in per capita production if the government is going to tax most of the savings of the people away from them and spend them on post offices, highways, dams and leaf-raking.

To take the people's savings away from them to keep the unemployed and their families from going hungry during a temporary emergency is one thing. To take the people's savings away from them and have them spent by the government as a permanent policy is another matter entirely. If this money were going into industrial improvements it would be cheapening the products of industry and thereby enlarging the markets for them by enabling the people to buy more of them; and while the money was going into industrial improvements it would be giving the industries greater earnings, a part of which they could use in employing more people and increasing their wages. The money spent to increase industrial efficiency would in the interim provide just as many jobs as would the same amount of money spent on fancy highways, canals, public buildings and leaf-raking.

Prettier Post Offices vs. Rising Private Incomes

In effect what these New Dealers appear to be saying is:

"America is to a very large extent through with spending its savings on industrially-useful things. A larger percentage must henceforth be spent on things that people do not want enough to buy them directly for themselves. This means that, on the average, Americans have got to be satisfied henceforth with wages and incomes amounting to just about what they are now and about the only improvement that the average man is going to notice in the way he lives is that he will mail his letters in a handsomer post office, drive his jallopy on a highway with fewer intersections in it and more trucks on it, and have the pleasure of watching scows move by on the cow-pasture creek which his sons now use for a swimming hole. Attractive jobs in industry will be permanently just as hard to get as they have been for the past ten years, and taxes will continue to be higher than ever and constantly to increase."

This is what the New Deal doctrine of the necessity of continued huge government spending means—unless it also means that the government, in accordance with the policy advocated by Mr. Berle, is going to begin investing large amounts of the taxes it collects in enterprises that it will run in competition with existing manufacturing and other private industries in producing the kinds of necessities, comforts and luxuries that these private industries now produce. But if the people now need, and will need in future, more food, raiment, shelter and other useful things than private enterprise is now producing, or may reasonably be expected to produce in future, why is this so? Always heretofore, excepting during brief periods of depression, private enterprise has steadily increased its production per capita of these things. If it cannot be relied upon to do so in the future as in the past—why not? Evidently because it has become subject to restrictive influences to which it was never subject before.

Anti-New Dealers assert that this is exactly what has occurred—that these restrictive influences are some or all of the policies of the New Deal; that private enterprise could and would expand its production as it always did before the present depression if these restrictive influences, especially huge government spending and taxing, were removed; and that therefore their removal is absolutely essential to the welfare of the people.

People Understood "Free Silver" Issue, and This One Is Simpler

That anti-New Dealers are right in making this contention is indicated by all experience in this and other countries and by the views of all economists of standing. And as it was possible to educate the public on the "free silver" question as was done in 1896, it would appear that the task of educating the public regarding this much less complex issue of "public versus private enterprise" ought to be simplicity itself. The contention of the New Dealers that after ten years of the worst depression in all history, and of seven years of New Deal policies, including government spending, there is need of continuance of huge government spending, presents so squarely the question whether present conditions are due to any faults naturally inherent in private enterprise, or to the government policies which the New Deal has applied to private enterprise, that it cannot be ignored or dodged.

Why, for example, has employment by the private enterprise represented by the railroads never revived as it always did after every previous depression? Principally because the total traffic handled by *all carriers as a whole* never has become as large as formerly. But why? Because employment, production and commerce in other private industries never have revived. The government's spending of vast amounts has created some traffic; but this added to the traffic provided by private industry never has made total traffic anywhere near as large as the traffic created by private industry alone prior to a decade ago; and the fact that it has failed to do so for seven years is surely strong evidence that government spending is neither a satisfactory supplement nor substitute for the expansion of production and commerce in private industry as a means of increasing traffic, earnings and employment in the transportation industry.

Business Interests Who Are Bigger Spenders Than the New Dealers

The issue of "public versus private enterprise" is crystal clear. The evidence available that "government investment" is not an adequate supplement or substitute for private enterprise and investment is conclusive. But there is one serious difficulty in the way of adequately and effectively presenting this issue from the

standpoint of private enterprise—viz., that many of the severest critics of the New Deal are just as great believers in public spending as is the most ardent New Dealer.

We refer, of course, to business interests which adhere to such organizations as the National Highway Users' Conference, the Mississippi Valley Association and the National Rivers and Harbors Congress. These interests do not want the government to reduce its spending, but, if they had their way, would have it go much further than the New Dealers favor in the construction of unproductive and wasteful public works. Many of them are Republicans, and are connected with large national business organizations. Such business organizations and Republican party spokesmen have been quick to grasp the issue presented to them by the New Deal's "public enterprise versus private enterprise" doctrine. But they are stymied in carrying a convincing educational campaign to the public regarding it, because they have to beware not to step on the toes of the big-highway and big-waterway business men.

The Skeleton in the G. O. P.-Business Closet

In effect, here is what these business and Republican spokesmen are saying to the people:

"The New Deal offers you jobs at the present dead-level of wages for three-fourths of the working population, and W.P.A., P.W.A. and home relief for the remainder. What we offer you is jobs in private enterprise—unless you happen to have been employed in the railroad or the railroad supply business. For many formerly having or desiring employment in such industries we will have to continue the W.P.A. and the P.W.A. in operation. We are very much against the New Deal's spending public

Who Should Take the Lead?

What do cautious and accepted authorities on rate-making principles have to say, applicable to the conditions which for many months have been revealed in this space? In a thoughtful address at the Franklin Institute last year Commissioner Aitchison said:

"The joint-costs theory breaks down when there is no added traffic to be had, save by taking it away from some essential transporter who is himself in desperate straits because of scanty business. The services of every transport agency are now freely reproducible in essence, if not in terms. Theories of distribution of fixed and joint costs among classes of traffic lose validity when they force the movement of high-grade, and formerly remunerative traffic from one agency to another, or compel a relocation of industry or change in industrial processes so as to make less transportation necessary."

The Commissioner prefaced the above in part by an observation made by former Commissioner Daniels, quoting Dr. Max O. Lorenz as follows:

"It is often true in the field of transportation that changes in opinion as to what is desired are not dramatically voiced or clearly defined, and there is a time-lag in adapting old theories to new facts."

Other eminent authorities have also made observations of similar significance, among them Commissioners Eastman and Mahaffie. Consider, for instance, Commissioner Mahaffie's declaration in Western-Southern Class Rates, 226 I.C.C. 534 that:

"Transportation of class traffic has changed vastly since these systems of rates and classifications were devised. Motor transport has become important and has taken much of the business. Instead of attempting to meet this competition by rate reductions, as such, by all commodity rates available to a limited class of shippers, and by forwarder operations, it is my view that what is required is a thorough-going revision of the entire basis of making rates on this traffic. Such a revision is only delayed by further attempts to patch up an out-moded structure."

To these general observations, add the sad facts brought to light in studies by both the Bureau of Railway Economics and the I.C.C. showing an ever-increasing decline in the ratio of railroad traffic to national production during the past decade. Then couple the railroad losses with the convincing evidence from the national trucking organization that they gained more than 50 per cent in traffic from 1935 to the end of 1939; that their gains were 22 per cent in January and 17½ per cent in February. Do not these completely disinterested sources amply support all that has been contended in this space with reference to the utter inadequacy of the railroads' present competitive pricing structure?

Commissioner Aitchison also said that "when a tonic becomes toxic, the prudent physician changes the medicine or the dosage," and added in conclusion:

"Not the least consideration is that projects in the field of transportation 'cannot be crammed down the throats of those who must carry them out or conform to them. Legal compulsion can be used to advantage to bring recalcitrants and stragglers into line, but not to drive hostile majorities into action'. * * * the matter before us compels us to a common concern, lest if we do not hang together, we all hang separately."

There are some students of the problem who insist that all forms of transportation should first be put on an equal footing of self-support before there is any attempt to readjust prices. Even if it were accepted that trucks were subsidized and their contribution to highway costs were increased by 50 per cent, such an increase would probably not make 5 per cent difference in truck operating costs. A 5, 10, or 15 per cent increase in truck operating costs would not equal their gain in operating efficiency since this question of subsidy has been brought to the forefront. To end these subsidies is important certainly, but such an ending is not just around the corner, and, even when and if it occurs, the problem of truck competition will not have disappeared.

What other interest is in better position than the railroads to initiate the stimulus needed for developing a pricing structure which will meet present-day conditions?

money to go into competition with any private business—except the railroads.

"For the government to spend public money to compete with its own citizens destroys private initiative and investment, and hence prevents employment and improved wages and living standards—excepting when the government happens to use tax money to compete with its own citizens in transportation. That is a special case, and we had rather not discuss it just at the present time. But remember that the New Deal economic theories are wholly unsound, in a general way—and please don't ask us any embarrassing questions concerning our views about transportation. That represents a special case to which we are giving a great deal of thought, but are not ready to report on it now."

That is the way opponents of the New Deal are fumbling after they have been handed on a silver platter a clear-cut issue of the greatest simplicity, regarding which they could undoubtedly educate and win the public with a minimum of difficulty and a maximum of assurance of success. New Deal opponents cannot present this issue without so many ifs, ands and buts as to leave their hearers confused and their own sincerity in question—simply because they are fearful of including government transportation facilities "built for use but not for profit" in their attack on New Deal socialism. They are afraid to proclaim genuine, clear-cut and understandable principles of private enterprise lest they offend the powerful business interests that, as regards transportation, are ardent practicing socialists.

"Public works" expenditures in this country are more largely for transportation than for any other economic purpose. Out-and-out socialistic ownership of the means of transportation has gone so far that socialized investment now equals or surpasses private investment therein. And yet, in an attack which hinges entirely on government competition and interference with private enterprise, these critics specifically except socialistic invasion of transportation from their general criticism!

Unanswerable Criticism from the New Deal Camp

The anti-New Dealers cannot get very far with a campaign of the kind they have so far waged in behalf of the "principles of private enterprise" without it being clear even to the dumbest of their prospective recruits that they are trying to side-step the most flagrant violation extant of the principles which they profess. Will such side-stepping inspire confidence, and enlist soldiers in a holy war? New Deal spokesmen already are beginning to ask some embarrassing questions of these critics—and they will ask a lot more unless such critics cease to be so inconsistent.

It would be tragic if such a clear-cut issue should be muffed at this critical stage of American history by the failure of responsible business leaders and political opponents of the New Deal to adopt a consistent policy. It tends to prevent a united front from being presented by believers in a true and complete system of private enterprise; and it is very bad politics. The railway labor unions are one of the most powerful political influences in this country. Most of their leaders and members are fully alive to the fact, as are many employees and former employees of railway equipment and supply manufacturing companies, that they have lost their jobs or that the jobs they now have are imperilled by the socialistic policies of unequally regulating the railways and their competitors and of subsidizing the latter. Do those making, or pretending to make, a fight for private enterprise in this country believe they can get the political support of employees of the railway and the railway manufacturing industries if they persist in promoting or refusing to oppose government policies affecting these industries that tend to perpetuate and increase unemployment in them?

* * * *

A Way to Put Men to Work

"This country prospers and those who want to work have jobs when capital is freely flowing into useful durable goods from which a return on the investment is expected. Since 1931 an average of ten billion dollars *less* each year has been invested in plants, machinery and privately financed construction than flowed into such production tools and living quarters in the 1920s. This figure is based on a study by the National Bureau of Economic Research. The total figures, exclusive of the large amounts spent to keep these durable goods in repair, were then a round 14½ billions annually. They averaged little more than 4½ billions a year in the four years following 1931. It is common knowledge that the discrepancy has not since been made up.

"We have become 'a one-legged nation', as Harry Scherman has said. We are hobbling along on our consumers' goods leg, with the spending of government deficits supplying a weak crutch for that leg alone. It is high time to consider reestablishing circulation in the other leg.

"How might that be done?

"Probably nothing else would so encourage the owners of the idle deposits in the banks or of the capital now running to cover in tax-exempt bonds to embark their funds in job-creating ventures as would the abolition of the income tax on capital gains. If we confined the income tax to a tax on incomes, cut out the 'heads the government wins and tails the taxpayer loses' provisions of the revenue law, the so-called strike of capital would soon end; idle money would go to work and unemployed would go to work with it. The successful business man, the entrepreneur, the commercial venturer could then enjoy the fruits of their efforts; they would extend their operations, to the advantage of the tax-gatherer as well as of the unemployed.

"At the moment there is little to indicate that Congress will undertake any helpful revision of the revenue laws at the present session. But this one item of the tax schedules could be quickly and easily eliminated by itself. It would be done if all of us, in and out of Congress, were willing to admit what we all know, that private enterprises can use capital to better advantage for all than the government can."

From the Wall Street Journal

The Ten-Car Passenger Train Used in the Tests

Draft Gears—Their Relation to Riding Comfort of Cars

Data obtained from passenger-train tests include charts showing draft-gear action and accompanying shocks and stresses

THE effect of various arrangements of draft gears, buffers, and couplers on the riding qualities of passenger cars has been determined by a series of tests conducted by the Waugh Equipment Company, New York, with a ten-car passenger train leased from the New York Central. Practical proof that Waughmat Twin Cushions reduce or eliminate shocks and vibrations and contribute greatly to smooth riding has been furnished by the riding comfort of trains equipped with these draft gears. The tests were made to procure reliable evidence of the actual and comparative values of Waughmat Twin Cushions, friction draft gears, buffers, and other arrangements of Waughmats.

Test runs, comprising 39 round trips, were made on the Mohawk division of the New York Central between Albany, N. Y., and Utica, a distance of 95 miles. Only the first three cars were equipped with test gears as it is obvious that a daily change of draft gears in all ten cars would have required considerable time and presented other difficulties. It was realized that the protection afforded by the gears in the first three cars would not be as great as might be expected if the entire train had been equipped with Twin Cushions and this fact should be kept in mind while examining the data. The remaining seven coaches were equipped with friction draft gears and remained unchanged throughout the tests. The buffers were removed from the test cars for all tests except those on the last two days and the diaphragms were pinned back so that the operation would be entirely upon the draft gears.

The equipment tested consisted of two types of well-known friction draft gears and Twin Cushions. Waughmat buffers were installed for the last two days of the

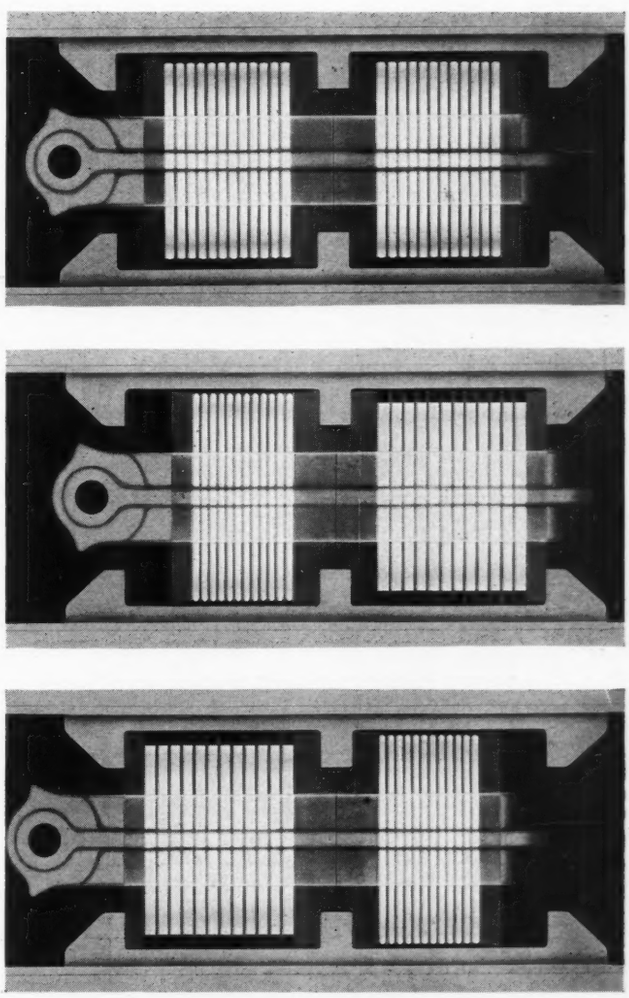
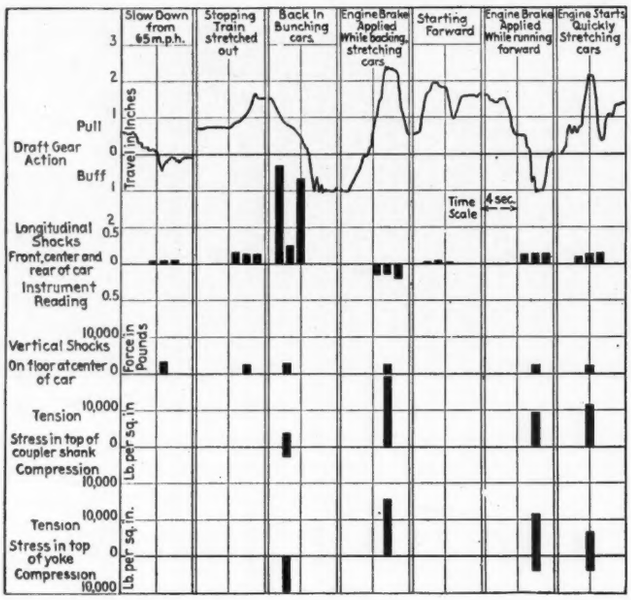
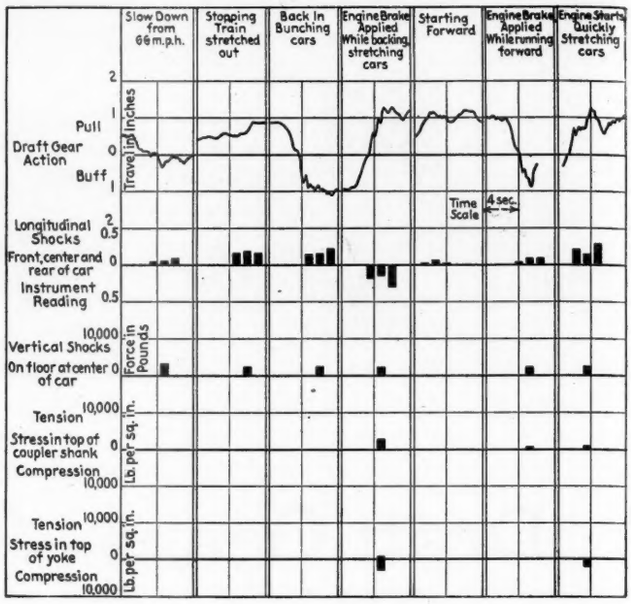
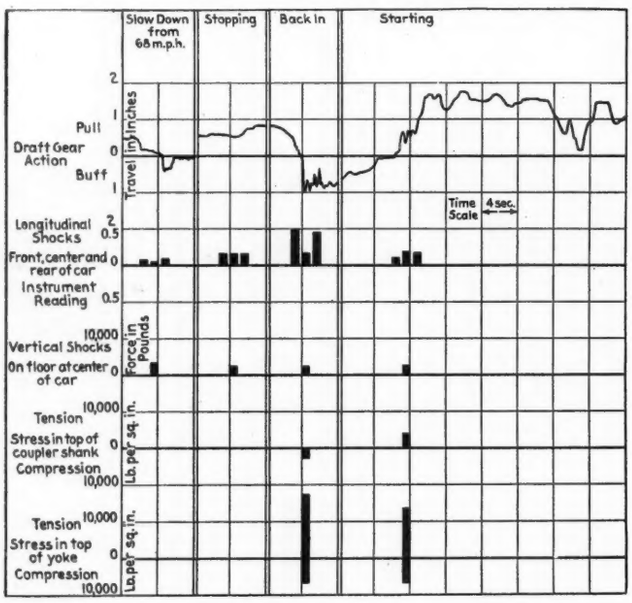
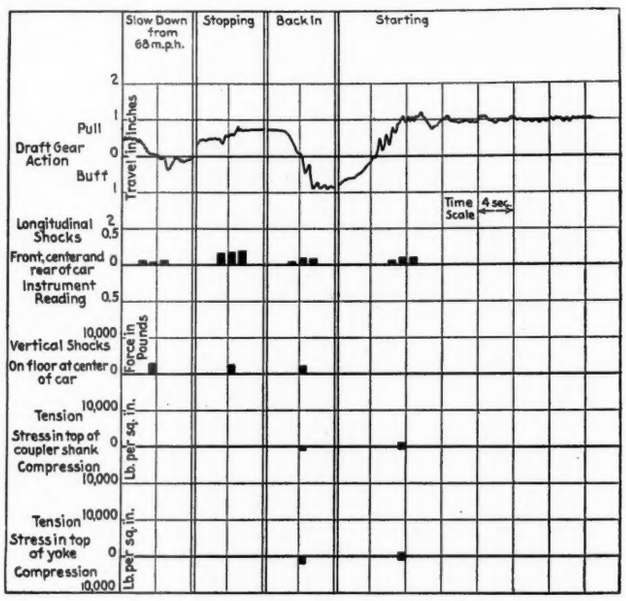


Fig. 1—The Waughmat Twin Cushion in its Normal Position (Top), under Buff with Front Unit Compressed, Rear Expanded (Center), under Pull with Rear Unit Compressed, Front Expanded (Below)


Slow Down from 65 m.p.h.
Stopping Train stretched out
Back In Bunching cars
Engine Brake Applied While backing, stretching cars
Starting Forward
Engine Brake Applied While running forward
Engine Starts Quickly Stretching cars
Draft Gear Action
Pull
Buff
Travel in Inches
Time Scale 4 sec.
Longitudinal Shocks
Front, center and rear of car
Instrument Reading
Vertical Shocks
On floor at center of car
Force in Pounds
Tension
Stress in top of coupler shank
Compression
Lb. per sq. in.
Stress in top of yoke


Slow Down from 66 m.p.h.
Stopping Train stretched out
Back In Bunching cars
Engine Brake Applied While backing, stretching cars
Starting Forward
Engine Brake Applied While running forward
Engine Starts Quickly Stretching cars
Draft Gear Action
Pull
Buff
Travel in Inches
Time Scale 4 sec.
Longitudinal Shocks
Front, center and rear of car
Instrument Reading
Vertical Shocks
On floor at center of car
Force in Pounds
Tension
Stress in top of coupler shank
Compression
Lb. per sq. in.
Stress in top of yoke


Slow Down from 68 m.p.h.
Stopping
Back In
Starting
Draft Gear Action
Pull
Buff
Travel in Inches
Time Scale 4 sec.
Longitudinal Shocks
Front, center and rear of car
Instrument Reading
Vertical Shocks
On floor at center of car
Force in Pounds
Tension
Stress in top of coupler shank
Compression
Lb. per sq. in.
Stress in top of yoke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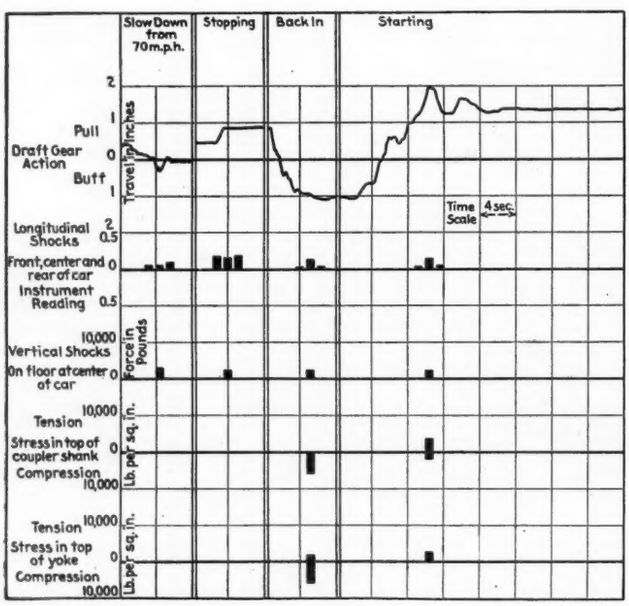
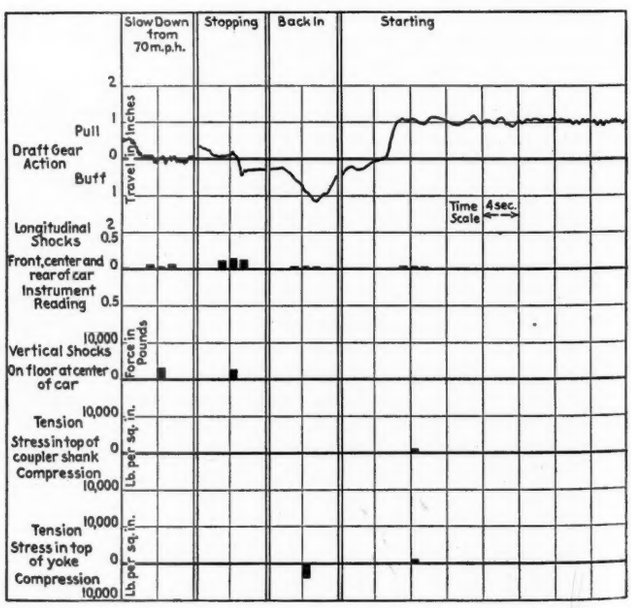
Force in Pounds
Tension
Stress in top of coupler shank
Compression
Lb. per sq. in.
Stress in top of yoke


Slow Down from 70 m.p.h.
Stopping
Back In
Starting
Draft Gear Action
Pull
Buff
Travel in Inches
Time Scale 4 sec.
Longitudinal Shocks
Front, center and rear of car
Instrument Reading
Vertical Shocks
On floor at center of car
Force in Pounds
Tension
Stress in top of coupler shank
Compression
Lb. per sq. in.
Stress in top of yoke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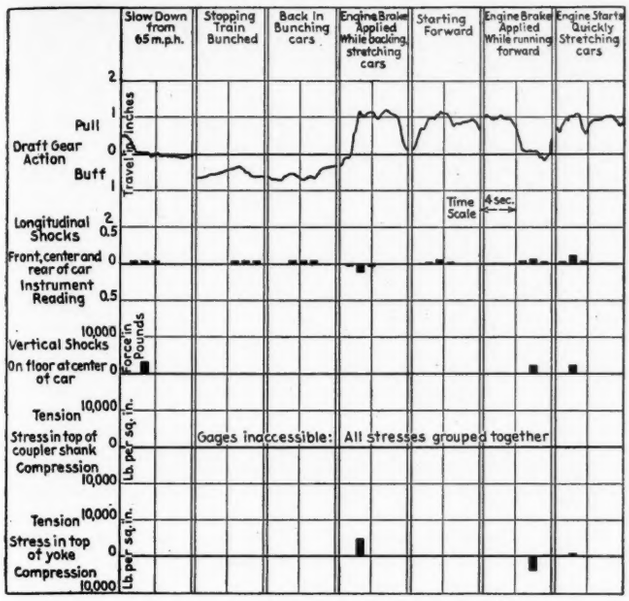
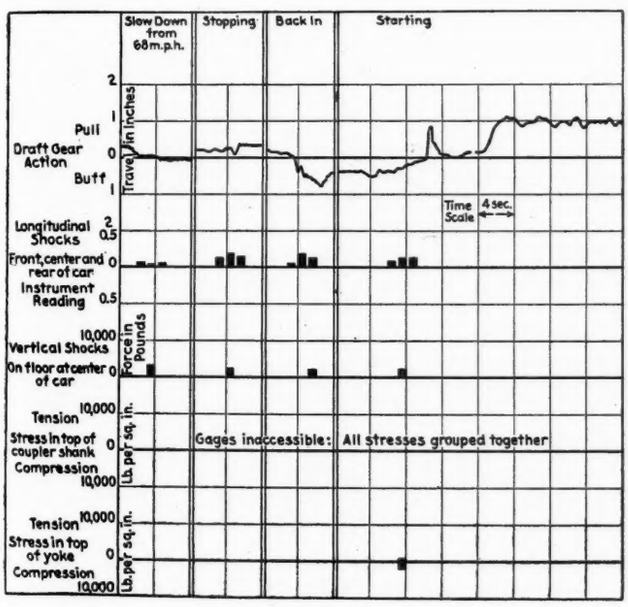
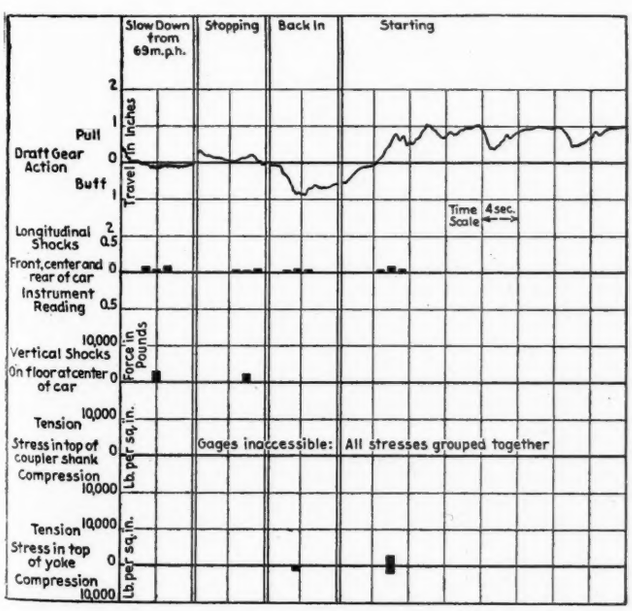


Left to Right: Fig. 2A—Friction Gears; Fig. 2B—Waughmat Twin Cushions; Fig. 2C—Waughmat Twin Cushions with Waughmat Buffers—All Charts for Normal Stop and Intentional Rough Start Showing Shocks and Stresses in Car No. 1 with Standard Couplers, on Tangent Track, 0.02 Per Cent Grade, Rails Wet



Left to Right: Fig. 3A—Friction Gears; Fig. 3B Waughmat Twin Cushions; Fig. 3C—Waughmat Twin Cushions with Waughmat Buffers—All Charts for Normal Stop and Start Showing Shocks and Stresses in Car No. 1 with Standard Couplers, on Curve 0 Deg. 22 Min. Right, 0.13 Per Cent Grade, Rails Wet



Left to Right: Fig. 4A—Friction Gears; Fig. 4B—Waughmat Twin Cushion; Fig. 4C—Waughmat Twin Cushions with Waughmat Buffers—All Charts for Normal Stop and Start Showing Shocks and Stresses in Car No. 1 with Standard Couplers, Tightly Locked, on Curve 0 Deg. 22 Min. Right, 0.13 Per Cent Grade, Rails Dry

tests. The tests were run with both standard couplers, and standard couplers tightly locked by means of a rod and turnbuckles.

A friction draft gear is a mechanism capable of cushioning shocks, properly housed, which fills the space between the stops in the draft-gear pocket in its normal position. This type of gear shortens under a buffing or pulling action, and as it does so it offers frictional resistance to such action. The amount the gear shortens depends upon the load and the rate of loading. Upon reversal of the direction of motion of the car, the draft gear has to travel the distance it was previously shortened before it can again offer any resistance to buffing or pulling. The change in direction of motion is often so fast that this type of draft gear cannot respond quickly enough to prevent high shocks.

The Waughmat Twin Cushion, Fig. 1, consists of two groups of Waughmat steel-rubber springs arranged each side of center lugs, which are attached to the car. The units are applied in such a manner that when a pulling or pushing force is delivered to the coupler, one unit is compressed, thereby absorbing the shock, while the other unit expands. When the direction of movement is changed, the expanded unit immediately absorbs the shock resulting from the change. By thus maintaining a tight connection between the coupler and the car structure and preventing open spaces at the ends, the Twin Cushion eliminates the uncontrolled movement in the connections which creates the dynamic shocks that occur so frequently in service.

As the object of these tests was to determine the effect on the cars of the various arrangements of draft gears and buffers, it was necessary to obtain permanent and continuous records of the draft-gear action. The draft-gear travel instrument was designed and built for this purpose. It was mounted directly behind the front draft-gear pocket on each of the first two cars and recorded graphically all of the movements of the yoke, even to the slightest vibrations, throughout each test run. A code mark corresponding to the "log of events" was marked on the graph by a marker which was controlled from a master key. Thus, it was possible to

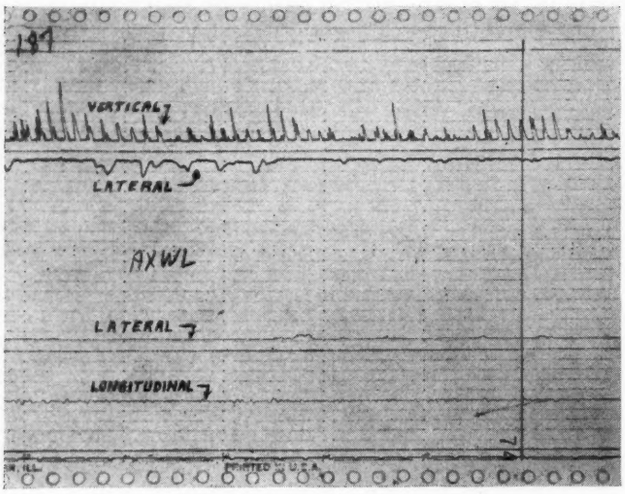


Fig. 5A—Vibrations with Friction Gear and Standard Couplers While Free Running at 70 m.p.h.

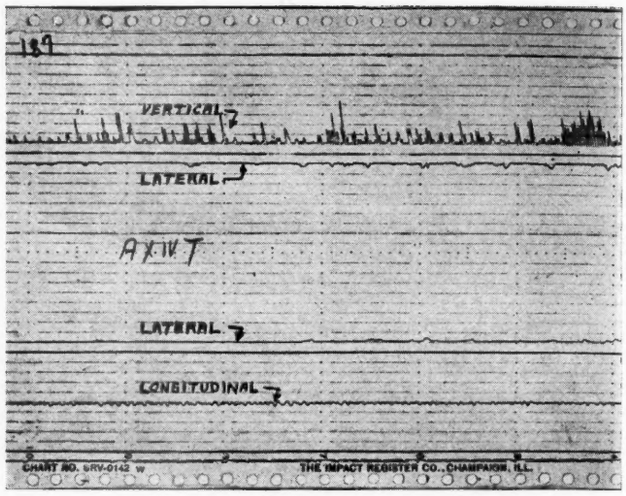


Fig. 6A—Vibrations with Friction Gear and Standard Couplers Tightly Locked While Free Running at 60-70 m.p.h.

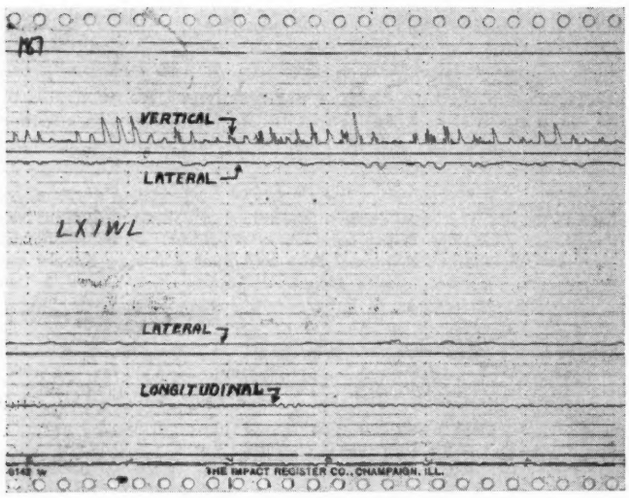


Fig. 5B—Vibrations with Waughmat Twin Cushion and Standard Couplers While Free Running at 70 m.p.h.

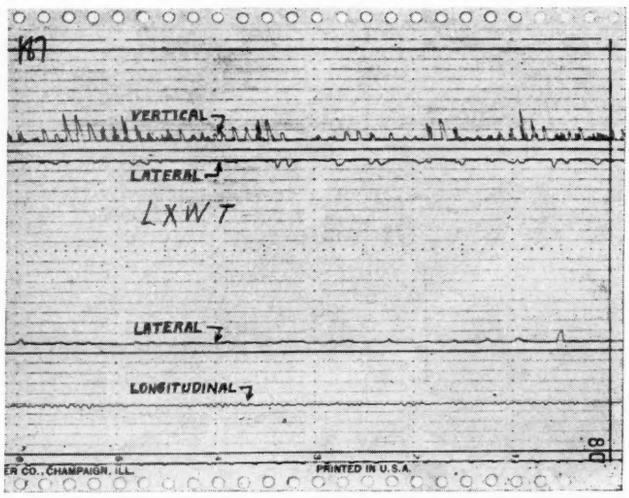


Fig. 6B—Vibrations with Waughmat Twin Cushion and Standard Couplers Tightly Locked While Free Running at 60-70 m.p.h.

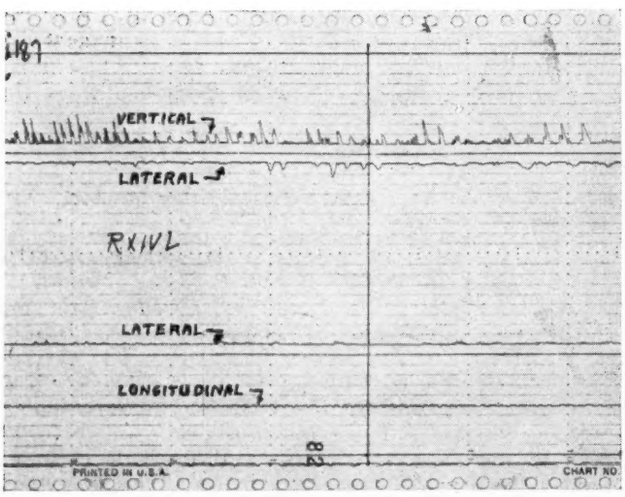


Fig. 5C—Vibrations with Waughmat Twin Cushion, Waughmat Buffers, and Standard Couplers While Free Running at 70 m.p.h.

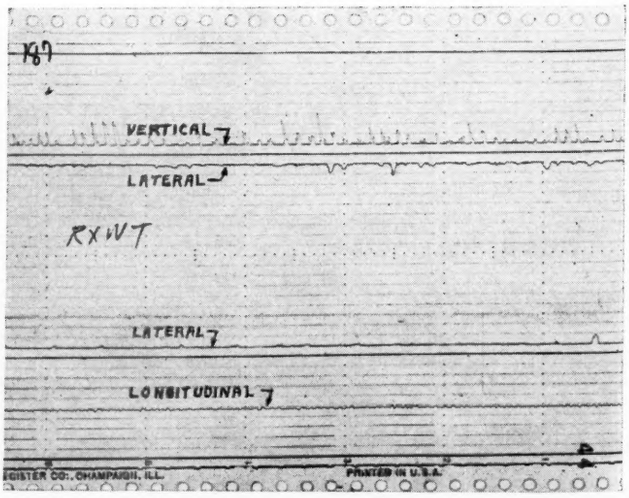


Fig. 6C—Vibrations with Waughmat Twin Cushion, Waughmat Buffers, Couplers Tightly Locked, Free Running at 60-70 m.p.h.

reach cause-and-effect conclusions regarding all draft-gear actions.

Accurate data as to the magnitudes and frequencies of longitudinal, vertical, and lateral shocks, as well as the oscillating or surging of the cars, were obtained from records produced by shock recorders. A three-way shock recorder was mounted on the floor in the center of each of the first two cars. To assure a constant chart speed the draft-gear travel instrument and the three-way shock recorders were connected to a master control board which was continuously under the observation of a member of the test crew. A code mark corresponding to the "log of events" was also marked on the three-way recorder graph by means of a marker controlled by the same master key and at the same time that the draft-gear travel instrument was marked, thus synchronizing these instruments.

A two-way shock recorder was located on the floor at each end of the first two cars. It recorded longitudinal and vertical shocks. These instruments were clock-driven at a speed of 12 in. per hour so that it is easy to locate on the chart the place at which each shock occurred.

It was considered desirable to determine the magnitudes of the stresses in the draft-gear yokes and coupler shanks during the test runs from two points of view, (1) the effects of the stresses themselves, and (2) the values of the stresses as a measure or indication of the shocks to which the passengers and cars were subjected. For this purpose several recording scratch strain gages were employed to determine the strains occurring in the coupler shank and the draft-gear yokes.

Other test equipment included stop watches, a signal system, pressure gages, telephone communication between the locomotive cab and the test cars, and a motion picture camera.

Eighteen different locations between Albany and Utica were selected at which definite events would occur such as stopping, starting, slow down, etc. These operations were performed at the same place and in the same manner by the same engine crew throughout the tests.

Test Data

Most of the test data has been inspected and much of it has been compiled. Charts have been drawn showing the draft-gear action and the accompanying shocks and stresses for friction draft gears, Twin Cushions with and without Waughmat buffers, and other arrangements, covering the entire test section of 95 miles. A few of the many charts are shown in Figs. 2 to 4.

Each of the charts has five divisions of data: (1) Draft-gear travel in inches; (2) longitudinal shocks at the front end, center, and rear end of the test car; (3) vertical shocks at the center of the test car; (4) stresses in the coupler shank, and (5) stresses in the draft-gear yoke. Each inch of chart from left to right of the draft-gear record shows four seconds of action. Having the amount of draft-gear travel, above or below the base line, and the time scale, the rate of travel in inches per second may easily be computed.

Fig. 2A, friction gears shows much higher stresses than does Fig. 2B, Twin Cushions, while shocks are still lower in Fig. 2C when Waughmat buffers are added.

Figs. 3 and 4 are graphs of action at the same location, mile post 180, the only difference being that in Fig. 3 the couplers were standard while in Fig. 4 the coupler knuckles were tightly wedged by means of a rod and turnbuckles, thus simulating tight-lock coupler effects. It is seen that there is a reduction in the magnitudes of the shocks and stresses when tightly locked couplers are employed with friction gears. A comparison of Fig. 4A and 3B with Fig. 3A shows that there is about the same amount of reduction in shocks and stresses when Twin Cushions are employed as for tightly locked couplers. In other words, Twin Cushions and tightly locked couplers perform somewhat the same function in reducing the shocks of train operations.

Train-handling operations were illustrated in Figs. 2 to 4. Records of the free running of the train are illustrated in Figs. 5 and 6. The shocks or vibrations in three directions, vertical, lateral, and longitudinal, are shown for mile post 187. Twin Cushions show much lower vertical and lateral shocks than do friction gears, Fig. 5A.

The employment of tightly locked couplers likewise reduces the magnitudes of the vertical and lateral shocks as shown by a comparison of Figs. 5A and 6A. However the frequency of vertical shocks or vibrations is slightly increased. Attention is called to the group of closely-spaced vertical vibrations of Fig. 6A. This is one of the many cases of momentary up-and-down vibrations of the car for this gear arrangement. If prolonged or repeated, it is very disturbing to the passengers. It is due to the frequency of the applied forces coinciding with the natural period of the vertical vibration of the spring system of the car. The number of vertical vibrations in the group indicated is 8.86 per second. By additional subsequent tests the natural period of vibration of this car was found to start at 8.75, to reach a maximum at about 9.27, and to be past the resonance period at 9.79 cycles per second. Hence, the natural frequency of the car and the frequency of the applied forces are seen to coincide. When the two coincide, poor or unpleasant riding is the result. For friction gears with standard couplers, Fig. 5A, the number of vibrations, or frequency, at this point on the track was only 7.50 per second. Thus, the use of tightly locked couplers increased the frequency only slightly, 7.50 to 8.86 cycles per second, but sufficiently to bring it into the range of disagreeable action. This condition can be changed either by making the spring system of the trucks slightly less stiff, or by damping the applied forces by the use of such equipment as Twin Cushions or Waughmat buffers. (See Figs. 6B and 6C.) Rubber, as everyone knows, is an excellent material to dampen shocks and vibrations. The advantages of tightly locked couplers are greater when used in conjunction with Twin Cushions, with or without Waughmat buffers.

Summary of Data and Conclusions

The highest shocks were found to occur when a change in the direction of the cars takes place, such as starting after having backed in. An examination of many actions illustrates the apparent reason why the rate of draft-gear action is often high for gears that can act in only one direction at a time. When the direction of travel of the car has been in one direction, the draft gear will be compressed corresponding to that condition. Upon a reversal of direction of the motion of the car, the car must move the amount the draft gear has been compressed before the gear can again offer any resistance to the energy being applied to the car. This lack of control, usual in a one-way action draft gear, results in a rapid rate of draft-gear action and consequent high shocks to the car.

The rate of travel in inches per second must be controlled. The energy applied to move the cars should be applied at a comparatively uniform rate rather than

(*Continued on page 629*)

The Barney Starting Up the Approach Incline With a Loaded Car

New Coal Dumper o Handles a

Lift-and-turnover type of dumper, with auxiliaries, built at Sandusky, Ohio, at cost of $4,250,000— Extensive dock work involved

BY the construction of a new electrically-operated car dumper of the lift-and-turnover type on Lake Erie at Sandusky, Ohio, which is designed to dump 60 cars an hour, the Pennsylvania has added substantially to the capacity of its facilities at that point for transferring coal from railroad cars to Great Lakes vessels. Incorporating the latest developments in car-dumper design, the new facility embodies numerous automatic features for controlling and correlating the various movements involved in handling cars through the new dumper. This project also involved the construction of a new earth-fill dock, 600 ft. wide and 4,500 ft. long, which in itself constituted an undertaking of major proportions. The cost of this project, which included the dumper, dock, ship channel, tracks and other related facilities, was approximately $4,250,000.

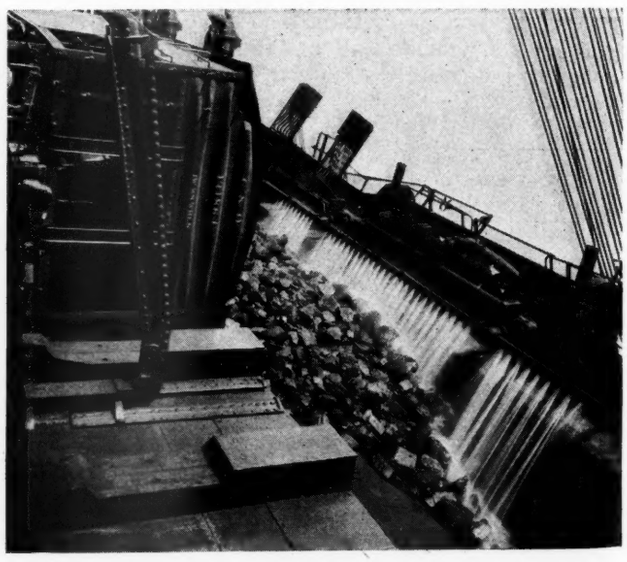
Two Existing Dumpers

Previous to the construction of the new dumper, the Pennsylvania had in operation at Sandusky two steam-operated dumpers, also of the lift-and-turnover type, one of which was constructed in 1913 and the other in 1925, the latter being known as No. 1 and the former as No. 2. In providing the new dumper, not only was the railroad desirous of augmenting its existing car-dumping capacity at Sandusky, but it was looking forward to the day when it would become necessary to retire the No. 2 dumper and, therefore, provided space on the new dock for duplicating the newly completed facilities.

The two older dumpers are situated on parallel earth-fill docks which have a slip between them, and which extend into Sandusky bay a distance of approximately 1,000 ft. Vessels reach these dumpers by means of a 22-ft. dredged channel which extends from the east, parallels the Sandusky waterfront and terminates in a turning basin located at the outshore ends of the docks. The car yards serving these older dumpers are located on shore and occupy much of the railroad's waterfront property at this point; therefore, in planning the new facilities, it was necessary to provide ground area for the new and future dumpers and the yards serving them by means of a new earth-fill dock, which projects into the bay at a location between Mills creek and the docks carrying the older dumpers. The accompanying map shows the location and general arrangement of both the old and new facilities.

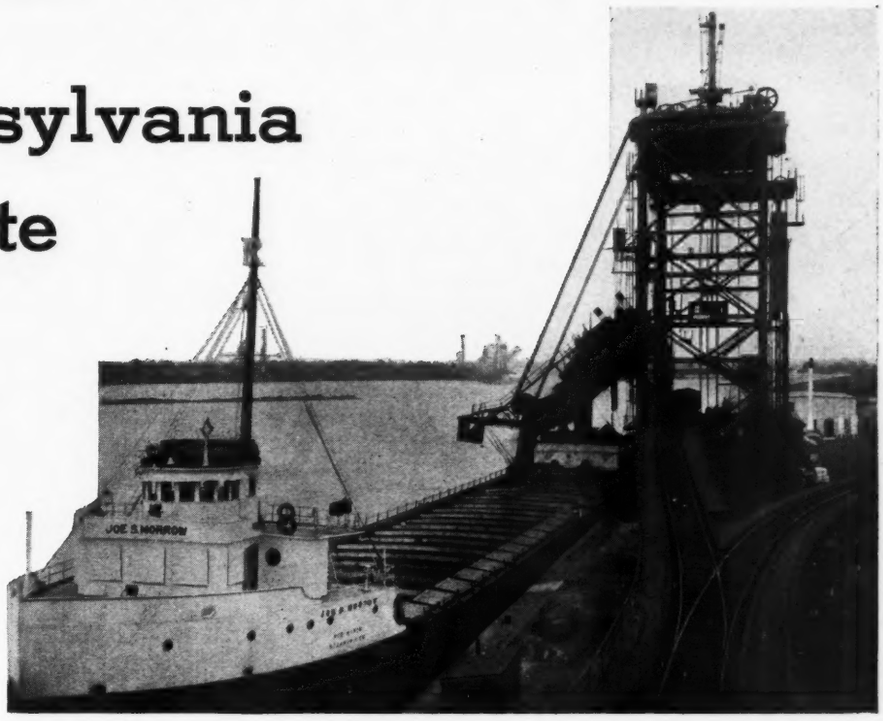
Along the westerly side of the new dock, the fill material is retained by a stone revetment but on the easterly side, which is the loading side, the fill is retained by a wall which consists of a steel sheet-pile bulkhead of cellular construction, which is surmounted by a reinforced concrete cap. This wall embodies a number of unusual features and will be described in detail at another point in this article.

As a part of the project a new ship channel, 22 ft. deep, was dredged from the turning basin at the old dumpers northward along the east side of the new dock, where it was made 400 ft. wide, and thence northeastwardly, where it is 300 ft. wide, to a junction with the channel, through which the Sandusky waterfront is reached from the entrance to Sandusky bay; thus, forming a loop by which vessels may have access to the old and new docks through the old channel and leave via the new channel.



In Addition to Illustrating the Operation of the Sprinkler System, This View Shows How the Flow of Coal in the Pan Is Controlled by the Retarder

er on the Pennsylvania
a Car a Minute



The New Coal Dumper in Operation, Loading a Boat, as Viewed from the Kick-Back Trestle

Other work done along the waterfront in connection with this project included the construction of a stone breakwater to protect that part of the new channel along the new dock, and the partial dismantling of an existing stone breakwater where it extended across the site of the new channel. The stone obtained from this breakwater was placed in the revetment along the west side of the new dock.

Major Units of New Facility

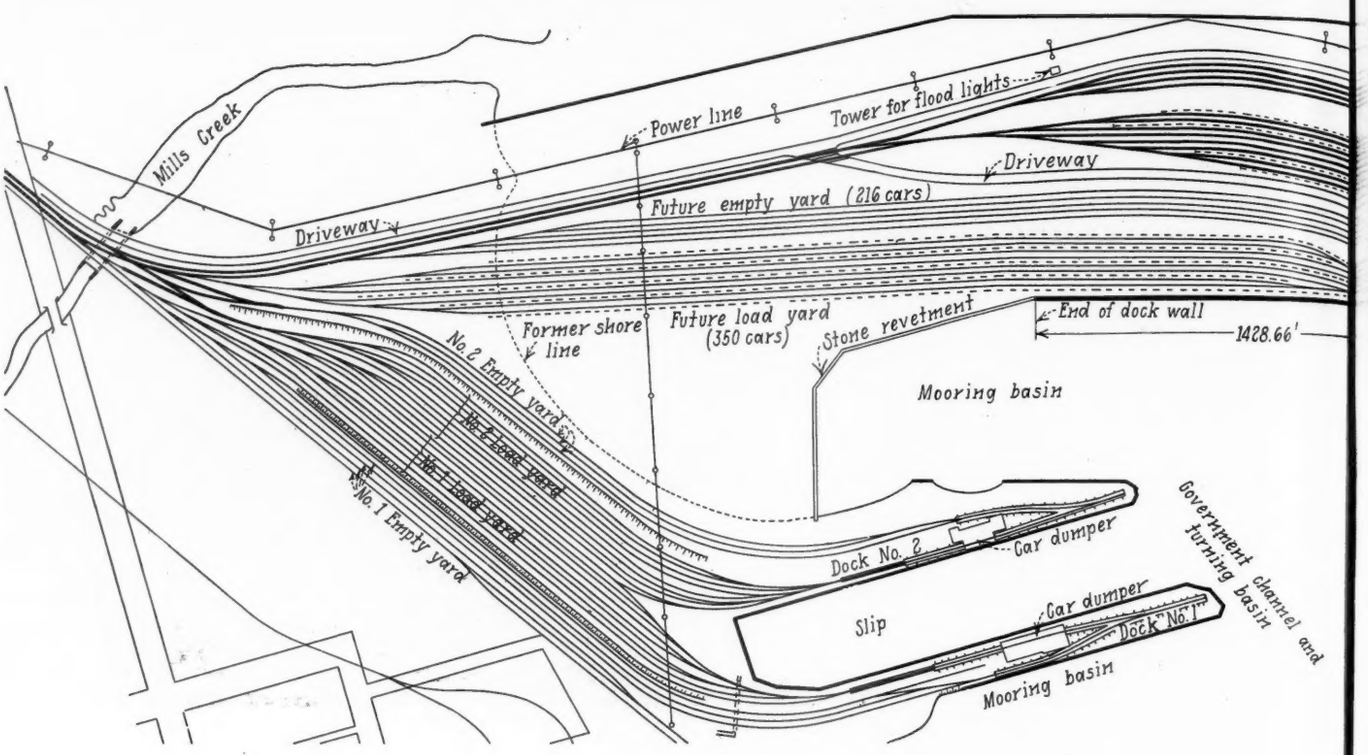
The new car dumper is located at a point 585 ft. from the outshore end of the new dock. The general design, construction, arrangement and method of operation of this new facility are much the same as other recent installations of the lift-and-turnover type car dumper. The major units of the layout include an eight-track loaded car yard with a capacity of 350 cars and a four-track empty car yard with a capacity of 200 cars; a disappearing-type barney for pushing the loaded cars up the approach incline to the dumper; a structural steel tower, 36 ft. by 74 ft. in plan and 117½ ft. high, which incorporates the elevating and dumping mechanisms, together with a tapering pan and a telescopic chute for transferring coal from cars to the holds of vessels; and a kick-back which reverses the direction of newly-dumped cars in their movement to the empty-car yard. The dumper rests on a reinforced concrete foundation which is supported on H-section bearing piles driven to rock. Both the approach incline to the tower, which is of reinforced concrete and structural steel construction, and the kick-back trestle, a steel structure, are also carried on concrete foundations supported on piles.

A feature of the layout is that the two yards, which are adjacent to and parallel with each other, are arranged at an angle with respect to the new dock in such a manner as to provide space on the east side of the dock for a future dumper which, in the arrangement of its component parts and in the capacities of the loaded and empty car yards, will be essentially similar to the new facility.

Cars bound for the dumper are moved from the loaded car yard, which is on a slight grade descending toward the dumper, to a position on the barney pit by 40-ton electric pusher locomotives operating on narrow-gage tracks placed alongside the yard tracks. As each car is moved over the barney pit, its wheels are engaged by a spring-type constant pressure car retarder which holds it in position until it is contacted by the barney, which pushes it up a 15-per cent incline and onto the elevating cradle in the dumper tower where it is stopped by a pneumatic car retarder. After being elevated, dumped and returned to the receiving position, the car is pushed off the cradle by the next loaded car. From the cradle it passes onto a 7 per cent descending grade leading to the kick-back which reverses the movement of the car and sends it by means of a spring switch onto the lead to the empty car yard. Just before entering this yard, which is on a 0.45 per cent descending grade, the car passes through a 22-section pneumatically-operated car retarder where its speed may be reduced as necessary for allowing it to enter the empty car yard.

In common with car dumpers of this type installed previously, the cradle is L-shaped in cross section and embodies a movable platen on which the loaded car is received. As the cradle starts the upward movement in the dumping operation, counterweights pull the platen laterally toward the front side of the dumper tower until the car is brought into contact with the vertical side of the cradle where it is held securely in place by a series of automatically-operated clamps while it is rotated and dumped. As the cradle returns to the seated position on the downward movement the clamps are released automatically and a bell-crank arrangement causes the platen to move laterally to its normal position in readiness to receive the next car.

After the coal flows from the cars in the dumping operation, it passes through a pan and into the telescopic chute which terminates at its lower end in a combination twin-gate and trimmer. At its juncture with the tower structure, this pan is supported, through hinges, on a girder spanning between the front legs of the tower.



This girder is adjustable vertically through a range of 25 ft. by means of a motor-operated screw at each end.

The pan, which has a capacity of 125 tons of coal and is triangular in shape, is 67 ft. wide at the tower and 4 ft. 11 in. wide at its throat to the telescopic chute, and can be adjusted to any slope necessary to assure the free movement of either fine or lump coal. In order to decrease the breakage of coal and speed up operations, an unusually large discharge opening (20 sq. ft.) is provided between the pan and the telescopic chute, the cross-section of the latter being proportionately large (30 sq. ft. at the bottom). Two motor-driven hoists on the pan raise and lower this chute to any desired position or swing it to any angle necessary for distributing coal within the holds of vessels.

Coal Flow Retarder in Pan

When lump coal is dumped from the cars it would rush down the pan at a rapid speed, causing much breakage, unless prevented from doing so. As a means of protecting coal against this degradation, the pan of the dumper is equipped with an automatic flow retarder. This device, which is designed to retard and control the flow of coal as it moves down the pan, consists of a transverse metal baffle, which is arranged in the pan at right angles to the movement of the coal and which is mounted on a motor-operated carriage. The baffle is faced with a 1-in. rubber chute lining and its ends are fitted with telescoping sections that adapt it to the varying width of the pan. This retarder is electrically interlocked with the cradle hoist and at the beginning of its downward movement the baffle extends across the pan near its upper end.

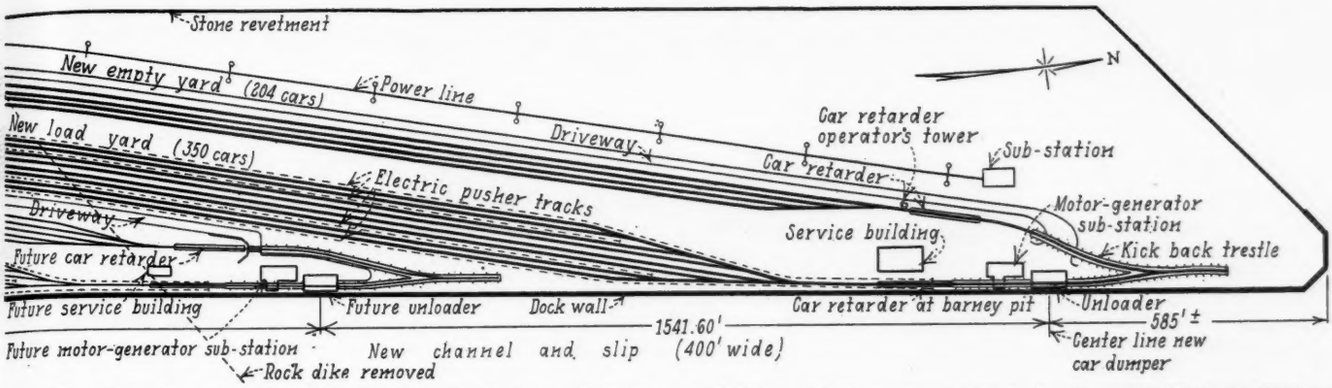
During the dumping of a car, the coal falls against the rubber-faced retarder baffle where it is held until a certain time in the dumping cycle when the retarder begins to move downward in the pan, effectively controlling the velocity of the coal. At the lower end of its movement, the retarder baffle is rotated on an axis near its upper edge so that it rises clear of the coal in the pan, permitting the coal to flow into the chute.

By means of automatically-controlled sprinkling equipment mounted on the flow retarder in the pan, provision has been made for moistening the coal to any degree desired as it flows over the pan. The sprinkler consists of a 4-in. pipe extending across the pan, from which the water is ejected through 6-in. diagonal slots 8-in. apart in the underside of this pipe. Water is discharged from the sprinkler system at the rate of 20 gal. per sec. and the amount delivered to the coal is regulated by the operator. The time of discharging the water is controlled automatically by the time switch actuating electrically-operated valves. Another feature of the dumper is a high-pressure washing system which delivers water at a pressure of 175 lb. per sq. in., by means of which coal adhering to the bottoms or sides of cars may be dislodged while the cars are in the dumping position.

Control Features

To promote safety and to expedite the handling of coal, the operation of the different functions has been correlated by the extensive use of limit switches, electrical interlockings and other automatic control devices. Among the control features is a circuit on the barney drive which prevents the barney from moving a car onto the cradle unless the latter is seated, while another feature forestalls any movement of the pan girder when the cradle is within six feet of it. Also, if the slow-down device should fail to function during the tipping movement of the cradle, an automatic control will cause the latter to come to an emergency stop.

All movements of the car dumper are controlled by three operators, one of whom is located in a cabin placed on the approach side of the tower at a level 12 ft. above the cradle when in its seated position. This operator controls the barney and the car retarder on the cradle and also starts the cradle in its lifting operation. Another operator, who is placed in a cabin located at a point above the pan, has means for controlling the cradle hoist, the pan and the pan girder, the sprinkler system and the flow retarder. The third operator, who is stationed in a



Plan of the Layout at Sandusky, Showing the Location of the New and Future Car Dumpers and Their Auxiliary Facilities, As Well as That of the Older Dumpers. New Trackage Indicated by Heavy Lines—Existing and Future Tracks by Lighter Lines

cabin placed at the outer end of the pan, manipulates the pan, the chute and the trimmer gates, and also the controls for raising and lowering the pan girder. By means of a communication system, using loudspeakers, the operators' cabins are connected with each other and with the dispatcher's and foreman's offices.

The rate at which cars may be dumped is governed largely by the speed with which they are moved from the barney pit to the cradle and from the latter position through the dumping operation. To achieve the desired rate of dumping, the barney is designed to move up the incline with a loaded car at a maximum speed of 11 m.p.h. and to return to the pit at a maximum speed of 17 m.p.h. The round trip of the barney requires 55 sec. The cradle is designed for a hoisting speed of 200 ft. per min., and the complete cycle of the cradle through the dumping operation is accomplished in 48 sec. with the pan girder at its highest position. The difference of 7 sec. in the two cycles is required for spotting the car on the cradle.

Electrical Equipment

Electrical power for supplying the requirements of the dumper is furnished by a power company in the form of three-phase, 60-cycle current at 23,000 volts, which is reduced to 2,300 volts by a substation on the premises. Power for the main drives is furnished by two four-unit, five-bearing synchronous motor-generator sets, each consisting of two 450-kw. adjustable voltage generators and one 375-kw. constant-voltage generator driven by a 2,300-volt synchronous motor.

This Construction View Shows Some of the Dock Wall Anchors As They Appeared Before the Wall Was Placed

The cradle and barney hoists are each driven by two 500-hp. direct-current motors whose armatures are duplicates of those for the 450-kw. generators, thus making it unnecessary to carry more than one spare armature for the four generators and four motors. Motors on the auxiliary drives include two 200-hp. units for operating the pan hoist, one 200-hp. unit for the pan girder screws, a 100-hp. unit for operating the flow retarder carriage, a 50-hp. motor for rotating the retarder baffle, and two 65-hp. motors for manipulating the telescopic chute.

Generator-field control is employed on both the barney and cradle drives, while the auxiliary drives are governed by direct-current rheostat control. Thrustor-type brakes are employed on the cradle and barney hoists, with magnetic brakes being used in all the other motors.

The motors and drums for the cradle and pan hoist, together with much of the electrical control equipment, are located in an engine room at the ground level. South of and adjacent to the dumper tower is the motor-generator building, which houses the motor-generator sets and the barney motors and hoist drum, and which is provided with the latest equipment for delivering washed air under pressure through ducts to pits under the various motors and generators and for maintaining sufficient air pressure in this building and the engine room under the dumper to prevent the entrance of dust. The barney hoist drum is placed in a wing extending under the loaded car incline leading to the dumper. This motor-generator building, which is 30 ft. by 82 ft. in plan, has brick walls, a structural steel roof frame and a gypsum-slab roof. The large glass-block panels, which are incorporated in the west wall and which give good daylight illumination without providing an opening for the entrance of dust or other dirt, are a noteworthy feature.

Another building, which is 52 ft. by 100 ft. in plan and of two-story pre-fabricated steel construction, is provided for housing the various offices, accommodations for employees and other services and facilities. Among the latter is a machine shop, occupying 2,800 sq. ft. of floor space, which is equipped for making repairs to the car dumper and auxiliary facilities. This building also houses two 300-cu. ft. air compressors for serving the requirements of the car retarders and the pneumatically-operated switches in the empty-car yard.

Details of Bulkhead and Wall

As mentioned previously, the cellular bulkhead and the dock wall cap along the east side of the new dock incorporate a number of unusual features of design and construction. In its essential aspects, this structure is comprised of a series of cells constructed of interlocking steel sheet piling, which is surmounted over the outer

This View of the Loaded and Empty Car Yards, With the Service Building in the Foreground, Was Taken From the Top of the Dumper Tower

line of piling by a reinforced concrete cap, 6 ft. by 6 ft. in cross-section, which is supported independently of the bulkhead by means of H-section steel piles. These cells were filled with rock to the top of the sheet piling, 87,632 cu. yd. of stone being required, above which a sand fill was placed to the top of the cap. Thus, the rock-filled cells and the cap perform the functions of a retaining wall for confining the earth fill in the dock and as a wall for mooring vessels.

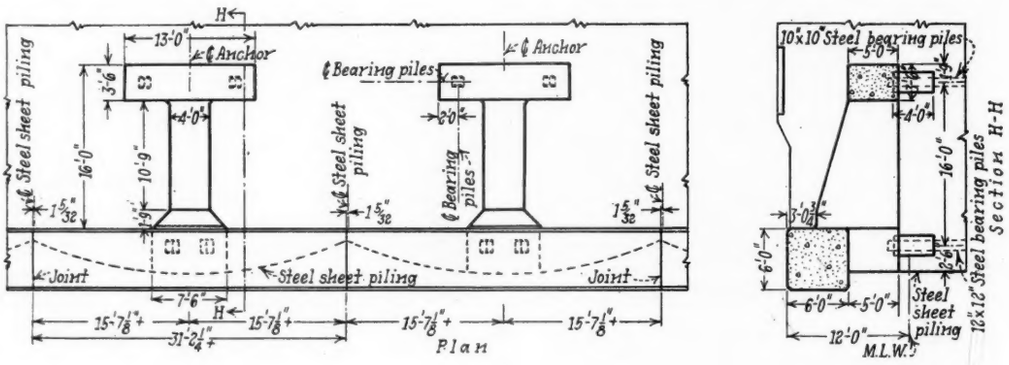
Comprising something of an innovation in dock-wall construction are the reinforced concrete anchors, one in each cell, by means of which the dock wall cap is braced against lateral forces from either direction. These anchors are T-shaped in plan and are arranged at right angles to the wall, with the cross member of the T placed at the back end of the anchor and at such an elevation that its upper surface is on a level with the under side of the cap. With certain exceptions the anchors are 16 ft. long, measuring from the back face of the cap, and in each case the cross member of the T is 3 ft. 6 in. wide by 5 ft. high and 13 ft. long. The T portion of each anchor is supported on two 10-in. H-section steel piles.

There are a total of 118 cells in the bulkhead, 111 of which are arranged in a straight line, 3,453 ft. long along the east side of the dock, while 7 form a curve around a portion of the outshore end of the dock. Except for the latter units the cells have a uniform length (measured parallel with the dock) of 31 ft. 2¼ in. The front and back walls of each cell curve outward on a radius of 40 ft. 9 in. and, except at the locations of the new and future dumpers where they are somewhat wider, the cells are 36 ft. 10½ in. wide, measured at the point of maximum width. The sheet piling forming the cells was driven either to rock or 32 ft. below low water datum and was cut off at a level 1½ in. below the underside of the cap.

The cap of the dock wall, which overhangs the cells 1 ft. 9 in. at their point of maximum width, was constructed in sections 62 ft. 4½ in. long, each of which extends the length of (and coincides with) two cells. At the center line of each of the cells the cap is supported on two 12-in. by 12-in. H-section piles, the upper ends of which are capped with a steel plate and encased in the reinforced concrete anchor. The undersides of the anchors are slightly above low water datum and, to protect the bearing piles where they are thus exposed, they are encased in short sections of 24-in. corrugated pipe filled with concrete. The concrete for all the anchors was constructed before the 6 ft. by 6 ft. cap was poured and the end of the anchor stem nearest the water side of the wall formed a mortise-like recess for receiving the cap. In placing the concrete for the cap, each section was cast as a unit, adjoining sections being separated by cork joints. Mooring posts were set in place in the cap at intervals of 62 ft. 4½ in. before the concrete was poured.

Two Types of Fenders

At the inshore end of the dock, which forms the edge of the turning basin, the wall is protected for 1,000 ft. by a timber fender. Elsewhere the fender consists of 10-ft. lengths of rubber tubing with an outside diameter of 7 in. and an inside diameter of 3 in. The rubber fender is suspended along the front face of the dock wall cap by eye-bolts embedded in the concrete 8 in. below the top and at intervals of 10 ft. 6 in. The tubing



Plan and Section Showing Details of a Typical Unit of the Dock Wall, Including the Anchors

is threaded onto a 23-ft. section of ⅞ in. cable, the ends of which pass upward through adjacent eye-bolts and double back to the center of and a few inches above the tubing where they are clamped together with cable clamps.

The fill in the new dock is comprised largely of material obtained in dredging the new channel, 1,500,000 cu. yd., being placed by the hydraulic method. Where it was necessary to provide a subgrade for track or driveways on the dock, the dredged material was covered with a layer of sand, clay or stone screenings. Another measure of the magnitude of the project is the fact that it involved the use of 4,625 tons of steel piling and 1,158 tons of steel bearing piles.

The design and construction involved in this project were under the direction of I. W. Geer, chief engineer-Western region, and J. D. Moffat, assistant to chief engineer.

The dock wall, trestles and foundations were designed by E. Weidemann, engineer of bridges and buildings, and G. W. Patterson was engineer in charge of the work in the field.

The car dumper was designed, built and erected by Heyl & Patterson, Inc., Pittsburgh, Pa.; the Great Lakes Dredge & Dock Company, Chicago, had the contract for building the dock wall and dumper foundations, and for the dredging; Ferguson & Edmondson Company, Pittsburgh, completed all grading above the hydraulic fill and constructed numerous other items about the project; the Minton Construction Company, Cleveland, Ohio, built the service building and related facilities; and the Collier Construction Company, Cleveland, had the contract for constructing the substation and the power transmission line. The motors and generators were furnished by the General Electric Company; the transformers for the substation were furnished by the Westinghouse Electric & Manufacturing Company; the car retarders were supplied by the Union Switch & Signal Company, and the Atlas Car & Manufacturing Company, Cleveland, furnished the pusher locomotives. All track work was done by railroad company forces.

Draft Gears—Their Relation to Riding Comfort of Cars

(*Continued from page 623*)

suddenly. Twin Cushions, actually two gears, do this, as is shown in the charts submitted.

Under the conditions of free running the test data show that all the various arrangements of draft gears and buffers give smooth longitudinal action. Prior to the tests it was not expected that any draft gear would greatly reduce lateral or vertical shocks. It was considered that the control of lateral shocks was more a function of equipment such as tight-lock couplers than draft gears. Similarly, it was thought that the spring system of the truck governed vertical action. However, the tests show that Twin Cushions greatly reduce both lateral and vertical shocks.

Tightly locked couplers, under the conditions of free running, greatly reduce lateral shocks, but increase the frequency of vertical shocks and vibrations.

The results of the tests suggest the following method for improving the riding qualities of passenger cars. If a car is observed to be vibrating or oscillating in any direction while running, determine the frequency of that vibration by the use of a three-way shock recorder or other instrument. Determine the natural period of vibration of the car, or one of that series of cars, in the vertical, lateral, longitudinal, and torsional planes. If the frequency during running coincides with the natural frequency of the car, commonly called resonance, change the truck spring system slightly so as to change the natural frequency or employ a damping medium such as Twin Cushions or Waughmat buffers to break up or prevent resonance. By preventing resonance, the riding qualities of the car will be improved.

S. 2009 Conferees Still Waiting for Wheeler

WASHINGTON, D. C.

CHAIRMAN WHEELER of the Senate committee on interstate commerce was scheduled to return from his California trip on Thursday or Friday of this week, after which the conferees on S. 2009, the omnibus tranportation bill, were to get together for their concluding sessions which are expected to bring forth agreement on the conference report's final form. The next meeting has been tentatively set for April 8, but whether that would become the actual date was not known until Senator Wheeler's return.

Meanwhile, as noted in last week's issue, the work of drafting the conference report has proceeded in accordance with the program arranged at the conferees' March 23 meeting where agreement was reached on all matters save the Harrington amendment. As noted also in last week's issue, the House conferees have at the same time been endeavoring to work out some modification of this "labor-protection" provision which will be satisfactory to their colleagues, some 250 of whom have signed the petition recently circulated by the amendment's sponsor (Representative Harrington, Democrat of Iowa) calling upon the conferees to retain the amendment or report a disagreement thereon so that it will come up for a separate vote.

Continuing his fight against the water-carrier regulatory provisions of the bill, Congressman Harrington extended his remarks in the appendix to the April 1 issue of the Congressional Record to insert a letter on that subject which was recently sent by John L. Bogert, associate editor of the Marine Journal, New York, to Fred Brenckman, Washington representative of the National Grange. Addressing himself to provisions requiring water carriers to obtain certificates of convenience and necessity, Mr. Bogert suggested that "Congress has no constitutional right to limit the use of the navigable waters leading into the Mississippi and St. Lawrence, since the Northwest Territory Ordinance distinctly specifies the contrary and also that this rule shall "forever remain unalterable, unless by common consent." As Mr. Bogert interprets the latter, the "abrogation of this rule would have to be passed on separately by the several states who were signatories to the original Northwest Territory Ordinance."

In the same issue of the Record, Mr. Harrington again extended his remarks to insert a letter he had received from Joseph P. Ryan, president of the International Longshoremen's Association, who asserted that either the Senate or the House version of S. 2009, "if enacted into law as originally written, will destroy coastal and inland water service by raising water rates to the level of rail rates, and impose upon water carriers other arbitrary and restrictive regulations." Any diver-

(*Continued on page 637*)

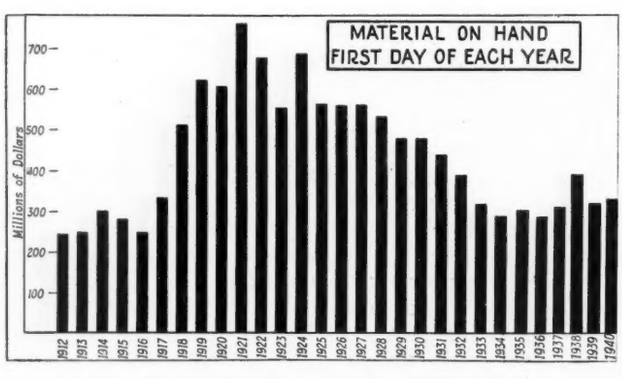
More Unapplied Material in Railway Storehouses

Inventory details show increases on many roads—Lower cross tie stocks—$53,000,000 from scrap sales

ALTHOUGH the railroads of the United States consumed more material and supplies in 1939 than in 1938 they bought more in the aggregate than they used, especially last fall, with the result that they had about $10,000,000 more material on hand at the end of 1939 than at the beginning, and approximately $25,804,000 more than on October 1, 1939, the increases being mostly in warehouse stocks. The inventories on January 1 this year, however, were smaller in relation to annual operating revenues and expenses, and reflected a higher average rate of turnover than in the previous year, while cross-tie inventories on January 1 were the lowest in 36 months.

A $332,000,000 Stock

The money tied up in unapplied materials in supplies on the Class I railroads, switching and terminal companies, and other roads amounted to approximately $332,000,000 on January 1, 1940, which was 3 per cent more than on January 1, 1939, and $57,371,000, or 15 per cent less than on January 1, 1938, following the pile up of material in 1937. Dollar for dollar, the aggregate inventory was $41,241,000, or 13.8 per cent more than on January 1, 1936, about $145,051,000, or 30.6 per cent, less than on January 1, 1930, and it was less by $435,267,000, or 57 per cent, than at the close of 1920, following the return of the railroads to private operation after the period of Federal control. While railway inventories include much stand-by material to protect the service from failures of material in use, and the relative changes in the inventory values would therefore be greater if only active stocks were considered, the roads almost all carry material in the inventories at cost until it is used, with the result that changes in values from month to month or year to year reflect for all practical purposes corresponding changes in volume rather than in value except during the post-war period and in 1932 and 1933 when material prices were unusually depressed.



Materials and Supplies in Stock on the First Day of Each Year, Class I, II and III Railroads, 1912 to 1940

The total inventory on January 1 was equivalent to $1,400 of unapplied materials per mile of road, and was in the ratio of 8.2 per cent of the operating revenues of the previous 12 months and 10.9 per cent of the corresponding operating expenses, as compared with $1,340 per mile, 8.9 per cent of operating revenues, and 11.6 per cent of operating expenses in 1938.

More Money From Scrap Sales

Class I railroads, according to the analysis which has been completed by *Railway Age*, applied or consumed approximately $902,482,000 of materials and supplies in 1939 as compared with $760,875,000 in 1938 and $1,051,017,000 in 1937, and they obtained approximately

Materials and Supplies on Hand, United States Railroads

	Amount	Reduction	Per cent of Op. Rev.	Per cent of Op. Exp.
June 30, 1911	$244,932,000	$	8.6	12.4
June 30, 1912	246,790,000	+ 1,858,000	8.5	12.1
June 30, 1913	300,601,000	+ 53,811,000	9.4	12.4
June 30, 1914	278,940,000	21,661,000	8.9	12.2
June 30, 1915	248,888,000	30,052,000	8.4	11.9
Dec. 31, 1916	333,361,000	+ 84,473,000	9.0	13.7
Dec. 31, 1917	514,051,000	+180,690,000	12.5	17.6
Dec. 31, 1918	641,759,000	+127,708,000	12.9	15.8
Dec. 31, 1919	608,527,000	33,232,000	11.6	13.5
Dec. 31, 1920	767,267,000	+158,740,000	12.1	12.9
Dec. 31, 1921	676,125,000	91,142,000	12.0	14.4
Dec. 31, 1922	556,260,000	119,865,000	9.7	12.3
Dec. 31, 1923	693,078,000	+136,818,000	10.8	13.9
Dec. 31, 1924	569,690,000	123,388,000	9.4	12.3
Dec. 31, 1925	535,126,000	34,564,000	8.6	11.5
Dec. 31, 1926	561,007,000	+ 25,881,000	8.6	11.8
Dec. 31, 1927	532,063,000	28,944,000	8.5	11.4
Dec. 31, 1928	478,625,000	53,438,000	7.7	10.6
Dec. 31, 1929	477,051,000	1,574,000	7.5	10.4
Dec. 31, 1930	437,375,000	39,676,000	8.2	11.0
Dec. 31, 1931	379,992,000	57,383,000	8.9	11.5
Dec. 31, 1932	321,595,000	58,397,000	10.8	13.1
Dec. 31, 1933	296,069,000	25,526,000	9.3	12.9
Dec. 31, 1934	302,346,000	+ 6,277,000	9.1	12.2
Dec. 31, 1935	290,751,000	11,595,000	8.2	10.8
Dec. 31, 1936	311,063,000	+ 20,312,000	7.6	10.5
Dec. 31, 1937	390,371,000	+ 79,303,000	9.3	12.3
Dec. 31, 1938	322,000,000	68,371,000	8.9	11.6
Dec. 31, 1939	332,000,000	+ 10,000,000	8.2	10.9

$53,337,000 from the sale of railroad scrap last year as compared with approximately $36,929,000 in 1938 and $68,552,000 in 1937. Total disbursements of material made by the Class I railroads in 1939 included approximately $250,725,000 of coal and fuel oil as compared with approximately $246,563,000 in 1938; $57,903,000 of new and relay rail as compared with $42,420,000 in 1938; $56,142,000 of cross ties as compared with $50,889,000 in 1938; and $537,711,000 of storehouse and miscellaneous material as compared with $421,002,000 in 1938. Materials consumed include second-hand and shop-manufactured materials as well as newly-purchased materials. Based on maximum figures available, the consumption of material in 1939 included $35,614,000 or approximately 850,000 tons of new rail as compared with $26,095,000 of new rail laid in 1938, and it included approximately $22,290,000 of relay rail as compared with $16,364,000 in 1938. The railroads laid ap-

proximately 44,200,000 cross ties as compared with 42,000,000 in 1938, and they sold approximately 3,700,000 tons of scrap as compared with only 255,000 tons in 1938.

Stock balances of the Class I railroads, excluding other lines, at the close of 1939 totalled $327,190,000 as compared with $317,562,000 at the close of 1938. The total on January 1, 1940, included $23,113,000 of coal and fuel oil as compared with $23,769,000 on January 1, 1939, and it included $26,491,000 of new and second-hand rail as compared with $26,969,000 on January 1, 1939. The cross-tie inventory on January 1 this year amounted to $47,795,000 as compared with $54,716,000 the year previous, while miscellaneous material in stock totalled $218,829,000 as compared with $200,566,000 on January 1, 1939. Unsold scrap totalled $10,962,000. The rail inventory on January 1, included about $10,542,000 of new rail and $15,949,000 of relay rail and rail on rests for track protection.

Materials on Hand, December 31, 1939, Class I Railroads

	Fuel (000)	Days' Stock	Cross-ties (000)	Months' Stock	Rail, New & S. H. (000)	Months' Stock
1929	$40,000	32	$95,000	8.1	$45,000	3.9
1930	28,200	40	101,200	10.9	44,700	4.9
1031	23,600	31	86,150	11.7	49,250	8.5
1932	20,500	36	67,200	14.8	48,100	18.0
1033	17,950	37	50,950	13.0	33,600	14.0
1934	19,930	34	47,297	11.0	36,885	13.0
1935	22,218	37	42,020	9.9	34,275	11.7
1936	26,137	36	40,542	8.9	31,226	6.5
1937	30,812	39	54,622	11.5	31,123	5.6
1938	23,769	34	54,716	12.9	26,969	7.6
1939	23,732	33	47,795	10.2	26,491	5.5

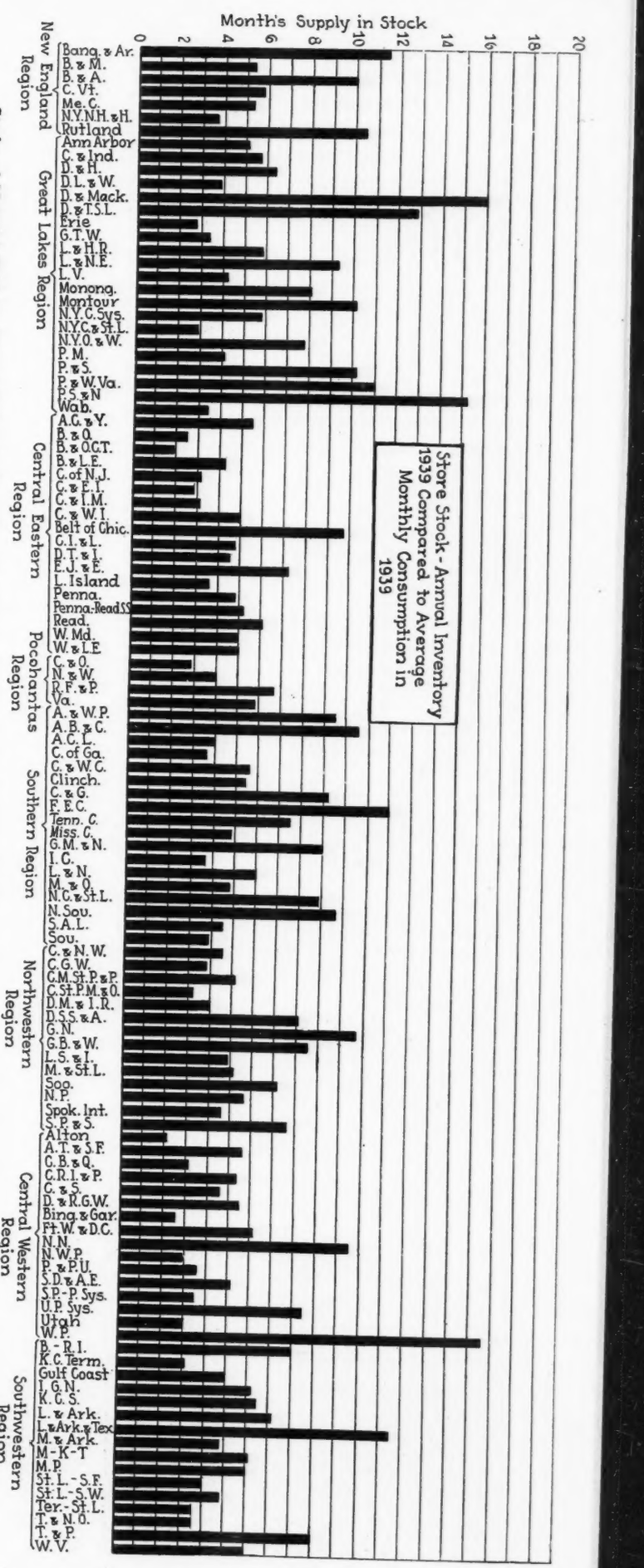
	Miscellaneous (000)	Months' Stock	Scrap (000)	Months' Stock	Total (000)	Months' Stock
1929	$292,000	3.5			$472,000	3.8
1930	246,500	3.8	$10,300		430,900	3.8
1931	203,869	4.4	13,200		374,331	4.5
1932	170,000	5.5	12,800		316,800	5.9
1933	178,091	5.7	10,700		291,291	5.8
1934	181,455	5.0	11,898		297,465	4.6
1935	171,920	4.7	9,427	3.1	279,926	4.3
1936	199,743	4.4	9,926	2.1	307,574	4.0
1937	256,988	4.8	12,356	2.1	385,912	4.2
1938	200,566	5.8	11,542	3.7	317,562	4.8
1939	219,717	4.9	10,073	2.6	327,190	4.2

Days' or months' stock based on average consumption per day or month during previous year.

4.2 Months' Supply

Based on the average month's consumption of materials in 1939, fuel stocks on January 1 represented a 33-day supply as compared with a 34-day supply at the beginning of 1939 and 39-day supply at the beginning of 1938. Cross ties on hand January 1 were equivalent to 10.2 months' supply as compared with 12.9 months' supply on January 1, 1939, and 11.5 months' supply on January 1, 1938. Store stocks on January 1 were equivalent to a 4.8 months' supply as compared with 5.8 months' the year previous and 4.8 months' on January 1, 1938. Stocks of all materials and supplies in the hands of the railroads on January 1 when related to the average month's consumption during 1939 indicated a 4.2 months' supply as compared with 4.8 months' supply on January 1, 1939, a 4.2 months' supply on January 1, 1938, and a 4.0 months' supply on January 1, 1937. Materials in stock on January 1 would reflect a smaller stock in terms of consumption than has been reported if only the rate of consumption in the last six months of 1939 were considered, and they would reflect a larger stock in terms of consumption on the basis of the somewhat decreased rate at which materials are being consumed at the present time.

Month-to-month statistics show that fuel stocks on January 1 were only fractionally higher than last fall



Stocks of Material Held by Class I Railroads December 31, 1939, in Relation to the Average Monthly Consumption in 1939—Excludes Fuel, Rail, Cross Ties and Scrap

Materials and Supplies Used and

Road	Fuel — On Hand Dec. 31	Fuel — On Hand Inc. %	Fuel — On Hand Day's Stock	Fuel — Used 1939	Fuel — Used Inc. %	Rail—New and Old — On Hand Dec. 31 New	Rail—New and Old — On Hand Inc. %	Rail—New and Old — Used 1939 New	Rail—New and Old — On Hand Dec. 31 Old	Rail—New and Old — On Hand Inc. %	Rail—New and Old — Used 1939 Old	Cross ties — On Hand Dec. 31	Cross ties — On Hand Inc. %	Cross ties — On Hand Month's Stock
Bangor & Aroostook	$149,000	8	126	$430,195	—9	$39,624	40	$103,564	$19,644	—30	$21,056	$120,529	—25	15
Boston & Albany	97,605	1	15	2,310,710	10	7,121	—11	105,544	120,564	—7	47,222	140,317	10	19
Boston & Maine	278,685	79	25	4,066,190	11	126,830	—30	60,881	143,721	—30	112,721	660,214	—13	24
Central Vermont	66,148	130	37	656,607	10	16,305	20	89,491	51,709	110	25,448	134,470	—1	23
Maine Central	111,846	146	27	1,422,601	4	23,147	—70	55,762	87,156	7	22,148	164,783	—12	9
New York, New Haven & Hart	961,398	53	77	4,555,391	4	86,146	48	679,597	307,850	54	327,565	708,510	—11	31
Rutland	58,711	68	..	497,381*	26	31,128	—1	22,942*	Not Separated			26,340	—6	10
NEW ENGLAND REGION	1,723,393	..	45	13,939,075	..	332,301	..	1,117,781	730,644	..	556,160	1,955,163	..	21
Ann Arbor	13,953	59	11	476,304	12	55	..	93	9,008	23	17,340	9,152	—44	1.9
Cambria & Indiana	615	6	6	36,691	22	9,876	..	None	793	136	2,594	18,627	8T	7.2
Delaware & Hudson	226,761	—22	28	2,096,088	13	19,011	—93	334,488	74,429	48	93,912	505,145‡	6	13.5
Delaware, Lack. & Western	103,551	—23	81	4,664,373	9	45,253	22T	267,899	107,773	13	184,579	233,245	—13	19.0
Detroit & Mackinac	8,047	49	5	57,962	—10	None	..	None	21,249	48	3,803	10,804	—35	7.0
Detroit & Toledo Shore	5,153	—25	13	147,836	27	522	50	4,199	6,507	22	1,825	10,157	—63	3.2
Erie	178,946	16	115	5,623,992	10	24,227	—1	830,843	205,897	17	309,571	651,703	—1	12.0
Grand Trunk Western	269,060	6	56	1,761,352	2	21,865	—14	84,115	182,139	—11	90,216	59,526	—18	1.4
Lehigh & Hudson River	7,058	63	18	141,060	28	16,548	—20	4,922	1,002	—49	780	6,983	—15	3.0
Lehigh & New England	103,003	24	14	278,578	22	80,281	80	49,811	Not Separated		31,996	38,991	—9	15.0
Lehigh Valley	165,403	—7	15	4,084,694	11	16,079	45	95,728	111,858	18	133,403	122,948	—20	5.2
Monongahela	1,558	580	5	111,315	7	583	135	44,598	13,375	88	26,833	4,481	5	7.5
Montour	1,251	—3	5	91,714	10	13,601	35	5,086	4,083	160	1,988	1,066	77	1.0
New York Central	807,014	—27	17	17,964,924	8	1,333,580	—8	4,416,888	Not Separated			3,923,076	31	13.9
N. Y. C. & St. L.	178,414	23	20	3,221,636	11	8,074	—69	302,109	49,360	—55	287,454	310,910	—37	8.5
New York, Ontario & Western	80,746	170	40	739,729	4	34,370	76	20,009	Not Separated			14,788	9	7.8
Pere Marquette	250,783	28	33	2,732,215	16	11,669	47	199,082	85,038	—12	167,559	518,862	—31	8.3
Pittsburg & Shawmut	13,441	35	11	43,426	29	42	..	None	1,394	—83	19,845	8,158	—62	1.9
Pittsburgh & West Virginia	2,108	..	..	120,745*	—3	37,066	—72	..	Not Separated			11,832	..	..
Pittsburg, Shawmut & Nor	1,234	16	9	50,350	—7	None	..	None	10,254	—30	6,467	7,868	6	2.3
Wabash	228,014	98	31	2,648,754	2	36,968	—27	432,660	135,970	4	139,757	500,994	—43	7.2
GREAT LAKES REGION	2,634,016	..	20	47,093,738	..	1,709,670	..	7,092,530	1,020,129	..	1,519,922	6,968,596	..	10.5
Akron, Canton & Young	1,882	..	6	111,157	21	2,681	45	1,670	4,866	—9	1,465	4,988	—32	1.2
Alton & Southern	339	—30	1	105,443	2	14,664	—66	23,554	3,679	—6	7,585	1,090	—43	1.8
Baltimore & Ohio	461,695	50	17	9,486,683	14	34,137	—94	553,212	181,426	7	296,940	503,492‡	—37	2.2
Balt. & Ohio Chi. Term	13,561	9	11	442,868	5	4,727	—8	355	..	..	20,893	19,579	—20	4.3
Belt of Chicago	36,733	100	27	497,385	3	17,353	20	24,345	25,209	—38	26,092	105,738	66	13.5
Bessemer & Lake Erie	23,928	108	21	401,008	50	122,921	—64	125,012	43,483	—17	84,233	10,492	—82	0.6
Central of New Jersey	69,739	—27	9	2,966,778	5	49,626	—47	138,331	19,938	—64	91,575	102,096	—57	6.5
Chicago & Eastern Ill.	31,229	35	14	811,348	1	10,354	—34	221,032	105,404	—30	93,139	142,662	—35	9.0
Chicago & Illinois Mid.	3,244	—8	7	160,055	6	9,316	75	65,039	19,432	146	15,460	25,241	74	14.8
Chicago & Western Ind	6,030	27	16	135,458	—1	18,688	0	41,660	35,436	7	15,442	36,678	1	8.0
Chicago, Ind. & Louisville	15,089	—19	12	467,371	1	90,374	8	49,970	Not Separated			86,749	—34	7.4
Detroit, Toledo & Ironton	10,965	—12	16	256,080	35	12,278	—42	9,102	20,291	—31	15,637	80,787	—29	11.5
Elgin, Joliet & Eastern	26,545	—3	13	724,310	50	55,071	—20	62,262	19,764	65	21,702	63,461	—33	2.5
Illinois Terminal	2,302	35	11	73,873	—5	None	..	1,001	34,655	3T	48,322	87,459	45	8.8
Long Island	46,233	—23	17	1,001,479	19	68,764	—36	44,101	16,080	—38	39,963	41,212	—12	3.1
Pennsylvania	773,618	—2	15	19,403,670	9	1,881,528	—6	2,250,821	486,504	20	1,563,756	3,703,860	—15	15.2
Penna., Read. S. S. L.	11,200	—13	9	458,137	8	1,798	44	2,697	25,953	—10	21,881	10,443	—28	11.5
Reading	233,998	138	19	4,435,506	6	279,962	—20	67,607	136,883	—21	48,133	473,633	—22	24.0
Western Maryland	64,607	24	23	1,010,630	23	8,037	—30	266,296	12,072	3	25,801	376,867	—24	12.8
Wheeling & Lake Erie	37,359	23	19	702,887	23	87,396	146	185,762	57,350	—24	133,851	105,346	—30	7.0
CENTRAL EASTERN REGION	1,870,296	..	16	43,652,126	..	2,769,675	..	4,133,829	1,248,425	..	2,571,870	5,981,873	..	7.9
Chesapeake & Ohio	218,354	—43	17	4,652,468	8	295,523	35T	1,067,683	85,772	—70	804,597	497,381	—30	10.4
Norfolk & Western	173,509	167	19	3,377,497*	—4	759,583	45	828,222*	Not Separated			806,916	—2	..
Richmond, Fred. & Pot.	50,878	—7	23	807,547	1	14,077	15	114,430	16,346	70	32,955	123,911	—18	8.7
Virginian	15,636	—3	8	689,675	14	89,766	—6	265,277	125,946	110	54,569	434,720	2	22.6
POCAHONTAS REGION	458,377	..	17	9,527,187	..	1,158,949	..	2,275,612	228,064	..	892,121	1,862,928	..	20.0
Atlanta & West Point	109,530	138	60	662,818	1	3,810	—78	67,235	31,556	56	35,372	105,083	31	8.6
Atlanta, Birm. & Coast	29,538	35	4	277,651	12	36,440	17T	6,085	10,093	—42	14,764	49,435	—36	5.6
Atlantic Coast Line	733,865	—20	62	4,291,939	5	14,058	—49	123,350	421,027	—29	353,139	436,416	—41	5.5
Central of Georgia	73,444	38	23	1,159,848	3	28,834	7T	147,748	48,871	65	107,269	250,968	—25	9.0
Charleston & W. Carol.	7,753	3	14	206,161	15	540	—68	24,215	8,703	—4T	11,823	40,712	20	7.7
Clinchfield	9,011	—28	10	324,115	14	6,413	—92	80,453	5,764	—15	33,121	106,817	—10	11.1
Columbus & Greenville	3,507	210	14	88,132	—11	551	5	27,564	10,288	35	9,337	3,022	—9	7.6
Florida East Coast	176,463	11	91	705,139	—11	25,321	—2	551	270,279	—10	80,471	109,581	—31	5.5
Gulf, Mobile & Northern	16,379	—45	20	288,124	2	1,905	19	31,343	24,954	—59	39,792	75,002	23	3.8
Illinois Central	289,537	—20	14	7,558,304	3	97,656	300	701,546	347,549	3	448,034	417,670	—30	2.6
Louisville & Nash.	330,759	26	26	4,660,918	—1	372,276	—22	758,512	153,928	—82	720,085	1,675,476	—1	17.0
Mississippi Central	1,988	—26	17	43,539	11	.....	..	.....	12,420	..	.....	30,352	—34	6.4
Mobile & Ohio	28,460	—26	20	520,704	—20	88,095	—7	173,886	60,261	103	86,494	245,676	0	7.6
Nash., Chat. & St. L.	200,783	40	69	1,053,961	5	39,157	—38	150,754	12,968	—62	55,313	379,453	50	20.2
Norfolk Southern	21,578	30	28	281,547	11	None	..	None	41,291	..	2,469	33,935	—33	2.1
Seaboard Air Line	408,721	25	43	3,450,176	8	22,220	—70	683,970	212,823	—10	584,421	519,358	17	5.6
Southern	442,801	12	21	7,716,049	6	30,429	—25	1,103,438	292,185	62	656,101	1,474,369	4	6.2
Tennessee Central	2,759	13	8	132,273	6	.....	..	31,093	.....	..	67,449	20,946	190	4.3
SOUTHERN REGION	2,886,696	..	31	33,421,398	..	767,705	..	4,111,743	1,964,960	..	3,305,454	5,974,271	..	6.9
Butte, An. & Pac.	392	—70	28	5,065	50	5,617	—66	11,920	2,615	—19	2,467	13,068	—2	4.4
Chicago & Northwestern	531,546	15	38	5,006,688	—9	144,623	—32	804,793	622,087	—20	686,373	2,190,304	—19	14.9
Chicago Great Western	38,386	34	11	1,318,852	—6	5,093	230	190,885	25,400	—38	121,246	42,972	10T	1.5
Chi., Milw., St. P. & P.	572,688	35	31	6,709,760	2	707,204*	140	2,094,646	Not Separated			1,526,509	—36	6.5
Chi., St. P., Minn. & O.	83,220	—23	18	1,717,387	—1	14,471	30	228,122	167,639	19	123,850	329,178	—22	8.7
Duluth, M. & I. R.	359,694	13	155	842,857	56	20,715	—36	171,557	42,871	—28	72,962	342,754	—9	24.0
Duluth, S. S. & Atl.	8,334	67	13	234,205	11	589	—8	None	17,110	—48	19,263	20,022	—60	4.4
Duluth, Winn. & Pac.	969	—13	3	133,797	25	113,717	—7	1,032	21,653	—5	2,230	13,868	—55	3.7
Great Northern	1,625,547	0	95	6,355,884	1	Not Separated		888,434	840,696		679,314	843,424	—27	5.7
Green Bay & Western	8,636	21	17	180,903	5	2,318	2	31,253	5,399	—51	15,400	6,095	—80	6.2
Lake Superior & Ish.	75,868	24	275	99,606	50	144	0	None	45,150	—12	6,420	23,637	—3	12.0
Minneapolis & St. L.	37,179	27	34	398,540	—3	1,560	—10	92,525	60,141	—22	104,005	237,941	130	8.6
Minn., St. P. & S. S. M.	137,720	—14	23	2,184,361	5	13,166	74	322,313	99,123	—25	175,309	302,087	—26	6.6
Northern Pacific	238,754	—7	19	4,594,941	2	344,757	22	1,426,480	680,237	35	618,943	1,600,063	—7	13.0
Spokane Int.	422	—3	3	46,390	—5	254	10	.....	11,427	—26	2,545	10,702	0	4.5
Spokane, Port. & S.	62,506	—2	37	613,655	3	5,632	86	223,609	69,210	56	45,363	112,267	—11	6.2
NORTHWESTERN REGION	3,781,861	..	15	30,442,891	..	1,379,860	..	6,487,569	2,710,758	..	2,675,690	7,614,891	..	9.0
Alton	37,335	29	14	971,156	4	12,725	—18	3,089	32,148	—46	54,107	159,109	—13	3.5
Atch., Top. & Santa Fe	2,880,952	—7	82	12,748,199	—5	2,244,633	—16	4,289,638	Not Separated			4,275,332	—9	20.6
Birmingham & Garfield	.....	..	..	6,226*	..	4,903	110	22,481*	Not Separated			17,803	24	11.0
Chi., Burl. & Quincy	503,122	5	39	4,765,039	2	983,731	43	989,949	.....	..	265,489	2,994,972	15	13.9
Chi., R. I. & Pac.	321,652	—5	23	5,172,476	—11	.....	..	.....	1,024,391	218	2,922,797	1,345,468	2	13.2
Colorado & Southern	24,398	—33	18	491,988	—2	3,129	—5	5,890	53,282	—49	39,835	59,461	—24	7.0
Den. & R. G. West	54,008	—21	10	1,948,412	5	13,604	—64	699,333	240,895	—22	360,545	195,342	—40	8.7
Ft. Worth & Denver City	132,854	—2	129	377,958	—17	4,194	—11	335	27,975	6	5,407	20,638	53	2.1
Northwestern Pacific	36,410	0	5	298,896	—13	210	—96	708	29,644	—36	71,784	22,457	—49	4.0
Peoria & Pekin Union	5,466	—7	20	98,590	14	89	—83	13,167	8,031	—84	4,650	1,828	110	2.3
San Diego & Ariz. E.	2,871	75	14	74,280	—5	1,321	..	.....	6,964	—9	1,956	10,412	17	3.1
Southern Pacific	1,307,030	—9	26	18,215,580	13	254,220	21	1,911,684	612,963	—23	1,072,920	852,516	—20	6.1
Union Pacific Sys.	1,050,091	—12	..	7,628,460*	5	2,600,501	84	3,322,971*	.....	..	.....	3,006,222	—6	22.0
Wabash	1,882	14	16	42,400	31	29,724	0	.....	5,149	—65	1,248	61,990	5	62.0
Western Pacific	146,516	23	33	1,615,486	28	78,030	1	14,588	175,293	—3	36,034	321,445	21	7.0
CENTRAL WESTERN REGION	6,504,587	..	43	54,455,146	..	6,231,014	..	11,271,263	2,216,735	..	4,836,772	13,344,995	..	14.1
Burl.-R. Island	1,067	—6	6	61,132	—3	1,296	—6	57	1,990	47	223	35,353	—17	26.4
Kansas City Southern	284,202	—23	128	807,029	..	4,512	—45	2,667	49,514	—50	51,499	250,426	—20	14.0
Kansas City Term'l	16,067	51	26	225,761	40	9,655	170	18,031	1,396	..	2,680	20,790	—46	4.6
Louisiana & Arkansas	184,709	—37	187	358,979	33	1,783	110	421	57,781	140	343,588	91,859	65	8.0
Missouri & Arkansas	1,663	20	8	70,517	—8	None	..	None	2,520	..	7,017	120	—81	.0
Mo.-Kans.-Tex.	59,498	—17	13	1,638,908	—17	59,704	—11	131,566	Not	Separated	215	334,913	—15	6.6
Missouri-Pacific	220,412	—69	170	4,763,190	—17	10,841	—73	1,277,859	275,241	20	653,699	851,847	—23	5.2
Gulf Coast Lines	242,160	12	190	745,110	—9	30,147	100	113,444	74,633	—40	120,694	73,812	—5	3.2
Intern'l Gt. Northern	212,116	—27	106	728,844	—26	6,831	—29	25,745	51,529	—58	88,448	134,135	21	9.3
St. Louis-San Fran.	228,592	13	26	3,181,032	—11	279,999	—31	729,086	Not Separated			1,265,666	—10	13.1
St. Louis-S. W.	243,305	—45	95	932,622	—19	187,462	160	653,663	120,610	6	113,364	252,626	—8	7.5
Term'l. of St. Louis	15,699	—7	9	628,118	8	14,382	—40	44,415	3,788	—3	7,284	16,880	7	5.3
Texas & New Orleans	536,296	—13	79	2,462,942	—15	99,189	40	71,026	384,110	—21	214,985	493,389	—29	8.3
Texas & Pacific	1,007,541	3	..	1,566,423*	—6	292,935	—37	381,928*	Not Separated			261,852	—16	20.0
Whichita Valley	699	—52	11	23,106	—28	None	..	None	1,053	..	1,577	8,614	75	4.0
SOUTHWESTERN REGION	3,254,026	..	65	18,193,713	..	998,086	..	3,449,908	1,024,165	..	1,605,058	4,092,282	..	8.2
Class I Total[Equalized	$23,113,252	..	33	$250,725,274	..	$10,541,778	..	$35,613,551	$15,949,362	..	$22,289,731	$47,794,999	..	10.2

* Estimated. † Scrap Rail. ‡ All ties. T Times in column.

Carried by Class 1 Railroads in 1939

Used on Hand 1939	Used on Hand Inc. %	Stores Stock On Hand Dec. 31	On Hand Inc. %	Month's Stock	Used 1939	Used Inc. %	Total—Less Scrap On Hand Dec. 31	On Hand Inc. %	Month's Stock	Used 1939	Used Inc. %	Scrap On Hand Dec. 31	Scrap Sold 1939	Scrap Total	Ratio to Op. Exp. %	Road
$97,113	4	$613,342	3	11.4	$642,078	−19	$942,139	0	8.7	$1,294,006	−15	$21,808	$35,640	$963,947	25.0	Bang. & Ar.
88,863	17	1,241,522	7	10.0	1,492,653	−8	1,607,129	6	4.8	4,044,992	1	29,975	366,221	1,637,104	10.8	B. & A.
335,664	−8	2,109,722	10	5.4	4,637,684	19	3,319,172	9	4.3	9,213,140	15	15,113†	260,610	3,334,285	10.1	B. & M.
68,892	−10	287,660	−15	5.9	586,488	−6	556,292	2	4.6	1,427,016	8	6,332	120,516	562,624	12.0	C. Vt.
229,989	−32	734,439	3	5.3	1,657,007	31	1,121,371	2	4.0	3,387,507	12	7,319†	36,872	1,128,690	13.4	Me. Cent.
268,686	−36	3,492,044	14	3.7	11,358,268	−7	5,555,948	17	3.8	17,189,507	−1	199,257	1,150,563	5,755,205	12.7	N. Y. N. H.
30,883*	−49	207,428	20	10.4	239,190*	14	325,607	22	5.0	790,396*	18	5,090	16,516	330,697	10.8	Rut.
1,120,180	..	8,686,157	..	5.0	20,613,368	..	13,427,658	..	4.3	37,346,564	..	284,894	1,986,938	13,712,552	....	
57,313	1	185,277	11	5.0	446,969	12	217,445	8	2.6	998,019	13	2,361	11,833	219,806	7.0	Ann Arbor
30,698	1	35,258	−5	5.7	73,588	4	65,169	48	5.5	143,571	7	6,589	.....	71,758	5.9	Camb.
447,288#	58	1,180,081	−11	6.3	2,268,564	64	2,005,427	−17	4.6	5,240,340	45	99,670	290,976	2,105,097	12.0	D. & H.
147,514	1	1,314,176	2	3.9	4,109,447	27	1,803,998	1	2.3	9,373,812	18	69,970	597,810	1,873,968	6.0	D. L. & W.
18,625	−21	137,724	..	16.0	94,204	11	177,824	1	12.1	174,594	−3	830	9,785	178,654	28.0	Detr. & M.
37,382	70	100,309	45	12.8	93,619	23	122,648	12	5.2	284,861	32	1,921	4,042	124,569	7.2	D. & T. S.
655,777	..	2,239,304	23	2.8	9,379,182	20	3,300,077	15	2.3	16,799,365	14	317,001	1,874,976	3,617,078	5.8	Erie
514,095	12	1,073,716	11	3.5	3,797,676	68	1,606,306	5	3.1	6,247,454	38	89,700	286,305	1,696,006	9.5	G. T. W.
27,736	12	53,306	−5	5.9	109,276	14	84,897	−8	3.6	283,774	21	1,081	12,388	85,978	7.9	L. & H. R.
31,134	..	215,595	30	9.3	276,912	15	437,870	30	7.9	668,431	10	13,065	83,321	450,935	16.3	L. & N. E.
282,348	87	1,894,207	10	4.1	5,514,171	10	2,310,495	−5	2.7	10,110,344	12	97,848	388,079	2,408,343	7.4	L. V.
71,588	69	173,417	5	8.1	257,870	54	193,414	4.5	5.8	512,204	60	3,077	10,464	196,491	11.8	Monong.
12,570	−6	151,394	17	10.2	179,330	3	171,395	20	7.1	290,688	3	6,635	8,614	178,030	15.3	Montour
3,393,876	14	17,384,889	3	5.9	35,598,660	35	23,448,559	−2	4.6	61,374,348	26	536,301	8,165,652	23,984,860	10.4	N. Y. C.
440,199	18	1,079,118	25	2.9	4,400,776	35	1,625,156	−1	2.2	8,652,174	25	49,878	497,786	1,675,034	5.9	N. Plate
22,649	−59	376,751	−1	7.8	581,109	−12	506,655	14	4.5	1,363,496	−6	4,689	132,188	511,344	9.3	N. Y. Ont.
744,900	−1	1,044,283	44	4.1	3,059,155	23	1,910,635	25	3.3	6,902,911	19	72,041	328,632	1,982,676	8.4	P. M.
52,092	36	71,109	−11	103	82,853	40	82,047	−27	5.0	198,216	49	4,148	7,585	86,195	13.8	P. & S.
58,301*		367,746	..	..	336,978*		418,752	..	..	516,024*	..	..	..	418,752	13.2	P. & W. Va.
40,905	95	57,493	5	15.2	45,062	15	76,849	−1	6.5	142,784	6	1,204	9,566	78,053	11.0	P. S. & N.
837,118	−5	1,581,257	15	3.5	5,546,206	−23	2,483,203	1	3.1	9,604,495	19	35,203	166,073	2,518,406	7.3	Wabash
7,924,108	..	30,716,410	..	4.8	76,251,607	..	43,048,821	..	3.7	139,881,905	..	1,413,212	12,886,075	44,462,033	....	
49,758	38	84,776	31	5.5	182,710	16	99,193	18	3.5	346,760	21	2,903	3,104	102,096	7.2	A. C. & Y.
7,372	−36	48,790	12	7.3	80,433	−17	68,562	27	3.6	224,387	−7	4,999	926	73,561	7.8	A. & S.
2,667,324#	126	5,214,888	−3	2.4	26,196,858	64	6,395,638	−13	1.9	39,201,017	48	112,343	1,464,609	6,507,981	5.4	B. & O.
70,361	128	196,618	−13	1.8	1,287,018	−11	234,485	−17	1.5	1,821,495	5	7,005	103,764	241,490	6.9	B. & O. C. T.
88,418	−54	214,609	..	9.7	268,546	−51	399,642	13	5.3	904,786	−32	24,794	72,324	424,436	12.5	Belt
202,723	−11	532,554	−2	4.3	1,133,789	77	733,378	1	4.5	1,946,765	28	9,791	222,017	743,169	10.1	B. & L. E.
190,488	19	1,068,880	−1	3.2	3,403,813	5	1,310,279	−18	2.0	6,790,985	5	72,597	365,117	1,382,876	5.7	C. of N. J.
190,837	−4	506,279	3	2.9	2,086,445	17	795,928	−12	2.8	3,402,801	14	51,647	390,591	847,575	7.2	C. & E. I.
20,362	−24	210,648	−18	3.1	798,154	48	267,881	−8	3.0	1,059,070	−29	12,352	59,890	280,233	10.5	C. & I. M.
54,801	−6	223,405	−14	5.0	527,279	3	320,237	10	5.0	774,940	4	10,421	57,447	330,658	18.7	C. & W. I.
140,010	18	418,388	62	4.8	1,029,963	32	610,600	110	4.4	1,687,314	15	36,146	.....	646,746	8.8	C. I. & L.
83,856	−6	257,926	−7	4.5	680,539	15	382,247	−19	4.3	1,045,214	15	10,302	22,378	392,549	10.5	D. T. & I.
300,529	106	827,057	15	7.2	1,382,752	47	991,898	4	4.8	2,491,555	54	44,824	421,088	1,036,722	8.5	E. J. & E.
70,993	13	294,159	−3	4.3	813,891	29	418,575	10	5.0	1,008,080	23	4,051	30,611	422,626	10.8	Ill. Term.
159,651	17	1,056,628	23	3.6	3,522,239	23	1,228,917	7	3.1	4,767,433	20	22,258	73,926	1,251,175	6.5	Long Is.
2,946,061	30	28,844,129	24	4.9	70,683,111	42	35,689,639	15	4.5	96,847,419	35	939,131	3,756,386	36,628,770	10.8	Penna.
106,456	−7	90,993	18	5.2	205,786	−2	140,387	4	2.1	794,957	2	5,224	12,095	145,611	24.0	P. R. S. S.
237,285	3	2,953,242	−16	7.1	4,980,557	26	4,077,718	−13	5.0	9,769,088	16	62,498	582,074	4,120,216	10.4	Reading
351,890	48	1,058,165	3	5.0	2,570,166	69	1,519,748	46	4.3	4,224,783	54	140,464	342,538	1,660,212	14.8	W. Md.
180,994	61	870,486	12	5.0	2,096,026	103	1,157,937	9	4.2	3,299,520	88	12,080	277,165	1,170,017	11.4	W.&L. E.
8,120,169	..	44,972,620	..	4.3	123,930,075	..	56,482,889	..	3.7	182,408,069	..	1,585,830	8,258,050	58,428,719	....	
583,911	−10	3,265,019	65	2.9	13,381,519	26	4,362,049	28	2.5	20,490,178	17	186,110	1,440,027	4,548,159	6.6	C. & O.
141,776*	240	5,151,321	19	4.0	15,316,082*	58	6,891,329	5	4.2	19,663,577*	39	133,134	.....	7,024,463	13.6	N. & W.
169,238	5	549,848	7	6.8	975,117	15	755,060	3	4.3	2,099,287	15	.....	.....	755,060	11.8	R. F. & P.
229,202	−36	1,842,507	11	5.9	3,775,136	25	2,508,575	11	6.0	5,013,859	17	31,480	.....	2,540,055	25.5	Va.
1,124,127	..	10,808,695	..	3.9	33,447,854	..	14,517,013	..	3.7	47,266,901	..	350,724	1,440,027	14,867,737	....	
147,963	4	649,789	31	9.5	826,302	134	899,768	36	6.2	1,739,690	47	11,203	49,235	910,971	15.0	A. & W. P.
106,313	−10	229,362	8	.....	.....	.....	354,868	7	.....	.....	.....	9,048	2,202	363,916	12.0	A. B. & C.
955,772	28	2,062,546	22	4.0	6,283,818	15	3,667,912	−8	3.6	1,208,018	2	136,577	793,376	3,804,489	10.5	A. C. L.
334,878	−5	604,170	−2	3.7	1,902,585	18	1,006,287	−2	3.3	3,652,328	14	24,143	198,857	1,030,430	7.7	C. of Ga.
63,480	−8	124,125	1	5.7	263,074	5	181,833	2	3.8	568,753	6	8,398	16,485	190,231	10.8	C. & W. C.
115,630	11	292,552	10	5.4	645,510	36	420,557	−14	4.2	1,198,829	30	19,878	91,645	440,435	12.5	Clinch.
47,627	20	125,470	1	9.3	160,689	26	142,838	5	5.1	333,349	26	1,019	29,555	143,857	12.0	Col. & G.
237,056	48	1,157,724	1	12.0	1,169,167	10	1,739,368	4	9.5	2,192,384	6	20,045	44,118	1,759,413	24.6	F. E. C.
235,837	−6	434,134	13	10.8	479,699	1	552,374	3	6.2	1,074,795	3	26,431	34,726	578,805	12.4	G. M. & N.
1,886,409	−15	4,131,626	−16	3.6	13,888,610	27	5,284,038	−15	2.6	24,482,903	20	1,034,170	1,701,941	6,318,208	7.8	I. C.
1,183,405	4	6,190,553	34	6.0	12,334,200	22	8,722,812	16	5.3	19,657,120	15	180,933	1,328,244	8,903,745	13.7	L. & N.
57,153	58	43,974	2	4.8	90,937	90	88,734	−11	5.1	209,999*	43	135	.....	88,869	11.8	Miss. C.
386,491	38	817,417	−5	4.8	2,021,704	34	1,239,909	10	4.7	3,189,279	25	462,528	108,797	1,702,437	18.6	M. & O.
219,511	−4	1,153,317	6	8.9	1,546,906	35	1,785,678	17	7.1	3,026,445	17	Not Separated	.....	1,785,678	15.2	N. & St. L.
193,538	7	338,649	8	9.7	416,000	1	435,453	8	5.8	893,554	5	27,016	.....	462,469	12.6	N. S.
1,104,390	4	2,732,797	26	4.5	7,325,813	28	3,895,919	19	3.5	13,148,770	19	112,274	382,540	4,008,193	11.0	S. A. L.
2,899,544	7	4,741,606	31	3.9	14,568,899	20	6,981,390	21	3.1	26,944,031	15	466,305	1,143,813	7,447,695	8.4	Sou.
57,993	17	161,607	−28	7.5	261,298	14	185,312	−22	4.0	550,106	24	.....	44,167	185,312	10.0	Tenn. C.
10,232,990	..	25,991,418	..	4.8	64,203,581	..	37,585,050	..	3.9	115,275,166	..	2,540,103	5,969,701	40,125,153	....	
35,986	−1	183,722	−9	11.1	194,478	−20	205,414	−12	9.9	249,916	−15	1,966	11,790	207,380	18.5	B. A. & P.
1,762,016	1	4,872,022	−12	4.7	12,485,054	7	8,360,582	−13	4.7	20,744,924	5	144,004	1,637,196	8,504,586	11.7	C. & N. W.
354,685	−5	433,828	17	3.9	1,310,396	−28	545,679	12	2.0	3,296,064	−18	46,749	.....	592,428	4.6	C. G. W.
2,806,196	60	6,804,864	15	5.2	15,487,681	−27	9,611,265	7	4.3	27,098,283	140	290,286	848,340	9,901,551	11.5	C. M. & St. P.
455,300	13	690,800	−9	3.3	2,546,943	13	1,285,308	−16	3.1	5,071,602	12	30,037	201,475	1,315,345	8.9	C. St. P. M. & O.
171,946	59	530,869	8	4.0	1,598,052	62	1,296,903	1	5.4	2,857,374	61	33,224	95,131	1,330,127	15.4	D. M. & I. R.
54,614	15	123,852	−11	8.2	181,333	3	169,907	−16	4.1	489,415	7	1,099	33,993	171,006	8.5	D. S. S. & A.
44,580	−11	73,424	4	7.5	119,647	18	223,631	−10	8.8	301,286	10	1,072	74,002	224,703	19.5	D. W. & P.
1,765,051	32	6,092,850	20	−8	9,194,980*	60	9,402,517	11	6.1	18,883,663*	..	.....	.....	9,402,517	15.5	G. N.
117,004	11	147,203	2	8.5	205,013	−24	169,741	−13	3.7	549,573	5	2,860	42,710	172,601	14.0	G. B. & W.
24,561	−4	172,208	43	4.9	60,587	−19	317,007	23	19.8	191,174	10	6,318	12,126	323,325	28.6	L. S. & I.
331,241	1	496,070	8	5.1	1,165,181	−1	832,891	23	4.8	2,091,492	2	6,038	120,641	838,929	11.8	M. & St. L.
551,745	−10	1,281,423	17	7.2	2,136,874	11	1,833,519	1	4.1	5,370,602	10	75,690	270,950	1,909,209	8.1	Soo.
1,488,379	1	5,023,344	−8	5.7	10,671,567	77	7,887,155	−5	5.0	18,800,310	9	526,878	585,681	8,414,033	16.9	N. P.
28,951	−1	44,062	13	4.5	118,407	136	66,867	−5	4.1	196,293	50	1,905	.....	68,772	11.4	Spok. Int.
219,770	−12	495,360	−2	7.7	765,546	20	744,975	0	4.8	1,867,943	23	21,342	83,890	766,317	12.1	S. P. & S.
10,212,025	..	27,465,991	..	5.6	58,241,739	..	42.953,361	..	4.8	108,059,914	..	1,189,468	4,017,925	44,142,829	..	
550,264	1	542,610	36	2.1	3,042,176	15	783,927	14	2.0	4,620,792	10	28,243	204,473	812,170	6.5	Alton
2,491,050	16	11,147,624	4	5.6	23,948,720	25	20,548,541	−3	5.7	43,477,337	18	403,118	1,997,047	20,951,659	16.6	A. T. & S. F.
19,440*	−17	20,355	−43	2.6	91,248*	130	43,061	−20	3.7	139,395*	60	970	.....	44,031	..	B. & G.
2,562,491	2	4,885,021	7	3.2	18,234,617	20	9,366,846	12	4.2	26,817,585	14	939,649	1,632,368	10,306,495	14.7	C. B. & Q.
1,231,329	7	5,218,070	5	5.4	11,559,143	3	7,909,581	15	4.5	20,885,750	3	129,419	1,719,114	8,039,040	12.8	C. R. I. & P.
102,372	15	267,399	15	4.6	691,949	1	407,669	−3	3.7	1,329,734	2	43,784	257,171	451,453	9.3	C. & S.
266,687	−34	2,226,527	−10	5.5	4,863,563	−8	2,730,376	−24	4.0	8,138,540	4	27,919	579,038	2,758,295	13.6	D. & Rio G.
118,788	14	395,595	−5	6.2	757,070	−11	581,256	−3	5.5	1,259,558	−11	13,216	102,734	594,472	13.8	F. W. & D.
68,760	18	98,146	45	3.0	372,192	1	186,867	−5	2.7	812,340	5	6,982	21,384	193,849	13.9	No. Pac.
9,363	−19	104,231	18	3.5	361,709	13	119,645	17	2.9	487,479	15	1,819	18,749	121,464	13.8	P. & P. U.
40,872	24	30,268	1	5.2	69,024	10	51,836	5	3.3	186,132	4	65	8,136	51,901	..	S. D. & A. E.
1,669,020	1	6,329,448	1	3.4	22,367,160	9	9,356,177	−4	2.5	45,236,364	2	377,364	2,528,196	9,733,541	7.9	S P.
1,650,691*	24	18,937,970	21	17.0	29,846,419*	42	25,594,784	20	7.2	42,448,541*	20	189,465	1,145,306	25,784,249	22.0	U. P.
13,529	−2	171,790	6	3.0	67,886	5	270,535	1	2.6	125,063	12	281	5,597	270,816	39.9	Wabash
551,787	29	451,271	17	16.5	1,061,152	25	2,172,555	−9	8.0	3,279,047	−23	26,102	115,859	2,198,657	17.0	W. P.
11,346,443	..	51,826,325	..	5.3	117,334,033	..	80,123,656	..	4.9	119,243,657	..	2,188,396	10,335,172	82,312,052	..	
16,037	23	34,980	−4	8.0	52,934	−47	74,686	−10	6.9	130,383	−26	383	.....	75,069	6.1	B. & R. I.
209,651		535,907	1	6.4	1,005,164*		1,124,561	−15	6.5	2,076,010*	55	16,817	.....	1,141,378	13.4	K. C. S.
54,360	103	134,945	−4	3.1	525,238	−9	182,203	−6	2.6	826,050	7	11,677	17,945	193,880	32.0	K. S. T.
137,882	4	508,099	24	7.2	843,580	53	844,231	7	6.0	164,654	59	24,790	164,654	869,021	19.4	L. & A.
125,443	145	35,141	−31	4.8	87,143	21	39,444	−13	1.6	290,120	40	None	9,478	39,444	4.1	Mo. & A.
611,249	9	1,511,927	−5	6.1	3,703,834	5	1,966,042	−9	6.3	6,085,557	−2	Not Separated	.....	1,966,042	8.8	M. K. & T.
1,974,449	50	6,190,344	20	..	12,447,142	30	7,548,685	4	4.2	21,116,339	12	.....	1,263,088	7,548,685	..	M P.
276,924	−4	806,770	13	5.0	2,056,549	1	1,227,522	9	4.5	3,312,721	−2	20,544	99,938	1,248,066	12.0	Gulf C. L.
173,073	8	967,308	16	6.2	1,862,267	−3	1,371,919	1	5.7	2,878,377	−9	28,584	328,336	1,400,503	14.0	I. G. No.
1,151,412	−23	2,668,837	−10	4.0	7,932,401	6	4,443,094	−11	4.1	12,993,931	−2	148,619	.....	4,591,713	11.4	St. L. & S. F.
400,276	15	1,029,384	34	4.8	2,598,354	56	1,833,837	9	4.7	4,698,279	45	135,848	344,890	1,969,235	12.6	St. L. & S. W.
37,713	−23	276,911	−14	3.5	952,860	−2	327,660	−14	2.3	1,670,390	−1	None	36,728	327,660	5.9	T. of St. L.
713,276	−3	1,984,223	5	3.8	6,241,918	1	3,497,207	−7	4.3	9,704,147	−7	132,967	355,248	3,630,174	11.4	T. & N O.
154,393*	43	2,550,737	13	9.0	3,352,098*	20	4,113,065	2	9.1	5,454,842*	16	Not Separated		4,113,065	21.8	T. & P.
26,019	19	13,800	8	6.0	27,774	−31	24,166	16	3.7	78,476	−19	1,017	1,184	25,183	7.6	Wich. Val.
6,062,137	..	19,249 313	..	3.4	43,689,256	..	28,617,872	..	4.7	73,000,072	..	521,246	4,141,295	29,139,118	..	
56,142,179	..	218,829,012	..	4.8	537,711,513	..	316,228,403	..	4.2	902,482,248	..	10,961,790	53,336,647	327,190,193	10.9	

*Estimated. † Scrap Rail. # All ties.

and have remained at about the same level for two years. Rail stocks on January 1 have increased less than could be expected from the large carry-over of unfilled rail orders from last year, and they were lower than in any month of 1937 and 1938, and were approximately $12,000,000, or 30 per cent, lower than on April 1, 1937, when rail inventories were at a peak. Although the railroads purchased more cross ties in 1939 than in 1938, stocks of cross ties on January 1, totalling $47,795,000, were lower than in any month since January 1, 1937, and were approximately $12,000,000 lower than on January 1, 1939, and approximately $25,000,000, or 30 per cent, lower than on April 1, 1938, when tie stocks were at their highest in four years. By contrast, the inven-

Approximate Quantities of Material Used in 1939, and On Hand December 31, 1939

	Fuel Oil Used Bbl.	Rail-New O. H. G. T.	Rail-New Laid G. T.	Rail-S. H. Laid G. T.	Crossties O. H. Pcs.	Crossties Laid Pcs.	Scrap Sold N. T.
NEW ENG. REG.:							
B. & Ar		905	2,345	1,112	189,906	151,239	
B. & A.	3,879	166	2,529	1,968	120,534	60,706	17,121
B. & Me.	3,042	2,875	1,405	4,438	449,060	231,816	19,790
C. Vt.	306	372	2,040	920	117,302	54,287	8,020
Me. C.	186	564	1,366	1,102	131,149	245,555	3,241
N. Y. N. H. & H.	398,294	1,944	15,386	13,102	417,716	176,521	61,259
GT. LAKES REG.:							
D. L. & W.	15,053	1,113	6,503	8,204	169,875	117,353	40,279
D. & Mack				137	21,608	33,646	763
D. & T. S.	135	13	95	79	5,606	21,045	403
Erie	57,166	568	19,543	11,080	555,591	455,321	100,137
G. T. W.	45,942	530	2,053	3,614	42,397	337,279	21,438
L. & H. R.			118	44		14,224	402
L. & N. E.	327		1,113	1,143		19,960	54,765
L. V.	36,080	427	2,543	6,652	90,748	164,634	36,867
Monong.	350	14	1,036	988	3,096	43,376	912
Montour	356	607	121	88	840	8,335	558
N. Y. C. & St. L.	5,771	189	7,137	10,771	271,382	307,506	23,761
N. Y. O. & W.		1,465	895		28,541	28,541	8,076
P. M.	6,447	278	4,451	6,781	476,943	472,786	
P. & Sh.	26	1		708	7,896	38,526	658
P. S. & N.				257	7,443	40,330	459
CENT. EAST. REG.:							
A. C. & Y.	65	69	42	60	4,542	45,422	202
A. & Sou.		328	512	304	702	4,609	67
B. & O.	99,873	948	15,367	19,796	302,370	1,715,543	92,873
B. & O. C. T.	1,020	120	9	692	10,517	36,824	9,272
B. & L. E.	2,240	2,969	2,950	3,658	5,201	95,232	17,348
C. of N. J.	9,176	1,108	2,850	3,549	60,628	109,401	23,027
C. & E. I.	5,930	239	5,112	3,725	147,408	164,523	21,567
C. & I. M.	2,071	207	1,443	670	16,614	12,053	3,686
D. T. & I.	136	273	201	1,040	74,081	60,439	1,644
E. J. & E.	11,548	1,337	1,472	944	41,175	183,617	26,235
Ill. Term.	2,831		27	2,087	96,780	61,968	2,346
Reading	268,000		1,735	1,925		128,262	
West. Md.	828	193	6,290	1,644	298,784	238,675	21,329
W. & L. E.	117	2,036	4,238	6,810	99,114	136,051	24,021
POCA. REG.:							
C. & O.	3,806	6,936	25,058	32,184	603,041	465,709	76,721
R. F. & P.		328	2,965	2,339	115,965	105,044	
Virginian		2,151	6,432	2,182	382,955	162,670	13,634
SOU. REG.:							
A. & W. P.		86	1,572	1,341	91,065	133,429	3,389
A. B. & C.		857	144	716	70,998	122,394	165
Cent. of Ga.		683	3,508	4,752	305,226	379,446	
Clinch		137	1,716	1,691	108,033	116,677	9,030
Col. & Green	86,827	12	633	475	3,832	46,124	1,982
F. E. C.	773,552	511	12	3,301	113,183	266,363	5,160
G. M. & N.	11,137	42	710	1,403	120,164	265,444	1,911
I. C.	84,830	2,288			411,716	1,843,946	112,373
L. & N.		8,883	18,123	32,566	1,515,354	834,612	
Miss. C.					32,830	56,854	
M. & O.	1,435	2,116	4,281	4,466	339,093	413,220	10,880
N. C. & St. L.	5,984	917	3,476	2,670	400,024	160,715	
Norf. Sou.				122	54,969	312,518	3,422
S. A. L.	139,500	530	16,219	21,780	563,733	1,028,052	27,532
Sou.	69,429	796	25,662	30,496	1,006,299	2,047,029	77,149
Tenn. C.	590		765				3,147
N. W. REG.:							
B. A. & P.		84	178	81	12,160	31,002	1,154
C. & N. W.	738,428		18,651	23,212		1,072,584	
C. G. W.	16,593	121	4,546	5,095	33,055	301,087	34,450
C. St. P. M. & O.	24,310	348	5,515	3,967	418,856	391,372	16,789
D. M. & I. R.	6,313	458	3,815	3,535	205,893	119,377	6,416
D. S. S. & A.		13		963	33,141	91,556	2,772
D. W. & P.	62	2,445	22	89	26,649	61,433	5,096
G. N.	2,842,604		19,943	27,152		1,423,913	
G. B. & W.	1,060	80	1,250	770	9,702	126,923	3,798
L. S. & I.	47	3		258	32,705	36,430	1,086
M. & St. L.	10,380	36	2,184	5,199	263,973	372,142	6,087
Soo	4,708	303	7,469	8,683	334,556	661,163	22,099
N. P.	260,275	7,944	32,868	29,473	1,758,310	1,270,815	
Spok. Int'l.		4		82	23,374	63,498	208
S. P. & S.	616,814	108	3,981	1,868	86,786	203,295	3,342
CENT. WEST. REG.:							
Alton	10,888	290	72	3,228	116,324	398,549	
A. T. & S. F.		98,354	147,326		3,962,897	2,099,644	
Colo. & Sou.	79,901	70	82	1,593	57,897	91,241	15,436
D. & R. G. W.		327	16,124	14,462	195,655	313,122	38,977
Ft. W. & D. C.	562,264	87	7	180	17,159	105,976	5,014
P. & P. U.	3,894	2	3,020	184	1,200	6,452	1,157
Utah		632		57	27,057	13,579	480
W. P.	1,093,859	1,647	315	1,111	322,409	466,707	5,665
S. W. REG.:							
Bur.-R. I.	81,992	29	2	8	36,450	19,016	
Gulf Coast	1,036,003	676	2,546	4,827	89,564	189,186	6,807
I.-G. N.	1,289,277	154	622	3,538	209,799	176,071	13,368
K. C. S.	684,147	96	55	2,990			
K. C. Term.	51,058	191	384	107	15,200	29,381	1,183
L. & Ark.	538,547	45	6	13,555	144,362	169,032	6,778
Mo. & Ark.	100			412	270	55,974	730
St. L.-S. W.	1,353,612	4,277	14,749	9,845	334,938	355,451	20,309
Term. of St. L.	1,432	298	920	291	10,108	22,583	4,591
T. & N. O.	3,464,964	2,062	1,589	8,714	690,491	769,163	
Wich. Valley	41,024			53	8,363	27,164	103

Not reported where spaces are left blank.

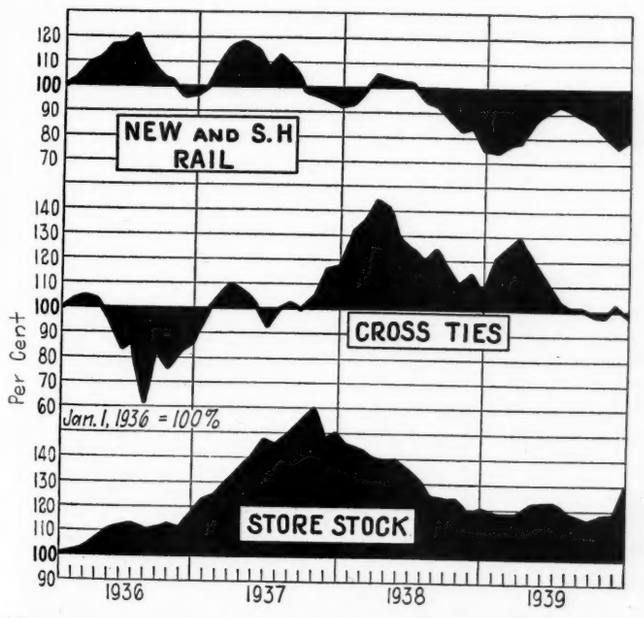
Year to Year Trend in the Percentage Relation of the Value of Annual Inventories to Annual Operating Revenues and Expenses

tory of storehouse and miscellaneous materials on January 1, amounting to $218,829,000, was approximately $18,263,000 larger than on January 1, 1939, and shows an aggregate increase of $25,804,000 since October 1, 1939.

Details Analyzed

The annual inventories and annual consumption of materials on different roads are given in detail in a table, in which the inventory and consumption figures are those reported by the railroads except where otherwise noted. Changes in inventory and consumption were determined by comparing the figures reported with those reported the year previous. Turnover figures were calculated by dividing the consumption in 1939 by 12 to obtain a theoretical average monthly consumption and dividing the result into the material balance. Accounting practices are not wholly uniform because of differences in the manner of interpreting accounting rules of the I. C. C. Both inventory and consumption figures are also influenced by differences in the practice of valuing second-hand and reclaimed materials, and there are also differences in the practices of charging material out of stock and in disposing of unserviceable materials which are included in stock balances. Inactive stock on the railroads at present appears to be 5 per cent of the total inventory.

Differences in practice should be considered in all comparisons. In the present analysis, comparisons are facilitated by separating classes of materials which are governed by different policies and conditions or which are controlled by different departments. Uniformity also has been promoted by including in the unapplied material ties at treating plants and by specifying that materials reported as "used" be restricted to the value of materials issued to close accounts. In practically all cases the total inventories of each railroad correspond to the totals reported to the Interstate Commerce Commission in General Balance Sheet Account No. 6716.



Month to Month Trends in the Dollar Value of Rail, Cross Ties and Storehouse Materials On Hand, January, 1936 to January, 1940

Reductions on Some Roads

Out of 121 railroads reporting detailed inventory and consumption figures, 42 roads reported less fuel on hand and 34 roads reported less fuel consumed during 1939 than in 1938, while 56 roads reported less rail on hand. Again, 78 roads, or considerably more than half the number, reported fewer cross ties on January 1, 1940, than a year previous, and 42 roads of the 121 reporting laid fewer cross ties. With storehouse and miscellaneous material, 34 roads reported less material on hand on January 1 than the year previous, and 21 roads reported lower consumption during 12 months of 1939.

Based on the average monthly turnover in 1939, fuel stocks on January 1, 1939, represented a 15 days' supply in the Central region and the Northwestern region, as compared with a 65 days' supply in the Southwestern region where large quantities of fuel oil are stored for some roads. The cross-tie ratio was lowest in the Southern region where the inventory on January 1 represented a 4.9 months' supply in relation to the average month consumption during the previous 12 months, and it was highest in the Pocahontas region where the inventory represented a 20 months' supply. Corresponding cross-

Materials in Stock—Class I Railroads

		Fuel (000)	Rail New and S. H. (000)	Cross-ties (000)	Stores Stock (000)	Scrap (000)	Total (000)
1937							
Jan.	1	$27,390	$31,817	$43,271	$195,104	$9,993	$307,575
Feb.	1	29,039	32,778	49,695	199,970	8,899	320,361
Mar.	1	31,669	35,990	52,560	211,383	8,604	340,206
Apr.	1	37,729	38,316	55,424	221,094	8,888	361,451
May	1	32,693	38,342	54,342	230,609	9,103	365,470
June	1	31,735	37,644	51,205	236,232	9,781	366,600
July	1	29,185	35,329	47,427	246,025	10,592	371,558
Aug.	1	32,652	37,043	50,036	244,638	10,463	374,832
Sept.	1	32,619	35,819	51,595	250,206	10,187	380,426
Oct.	1	28,906	31,870	50,572	261,740	10,706	383,794
Nov.	1	28,411	31,769	53,040	201,856	9,300	284,376
Dec.	1	33,473	31,022	59,247	248,931	10,989	383,662
1938							
Jan.	1	30,499	30,333	59,015	252,104	13,106	385,057
Feb.	1	31,453	31,820	66,153	242,328	11,634	383,388
Mar.	1	28,822	32,238	68,558	240,790	11,642	382,050
Apr.	1	27,847	34,644	73,280	233,396	11,214	380,381
May	1	25,223	34,076	71,583	232,747	10,464	374,093
June	1	22,391	33,504	65,020	230,902	12,127	363,944
July	1	22,568	33,007	63,271	226,370	10,042	355,258
Aug.	1	20,665	32,238	60,900	219,735	11,855	345,393
Sept.	1	23,192	30,451	62,935	210,564	10,369	337,511
Oct.	1	23,376	28,934	58,968	207,791	10,818	329,887
Nov.	1	20,802	27,280	55,619	207,814	11,282	322,797
Dec.	1	24,311	27,544	60,750	194,137	11,882	318,624
1939							
Jan.	1	22,660	24,733	59,491	199,477	11,200	317,561
Feb.	1	25,594	24,691	61,796	196,330	10,393	318,804
Mar.	1	27,100	26,229	63,346	196,669	10,239	323,583
Apr.	1	29,445	27,695	65,246	197,383	10,686	330,455
May	1	24,101	28,459	60,749	203,806	11,217	328,332
June	1	21,048	29,345	57,067	205,169	11,548	324,177
July	1	18,732	30,520	52,809	205,027	11,761	318,849
Aug.	1	20,175	30,026	52,158	197,960	12,023	312,342
Sept.	1	21,165	29,137	51,375	194,802	12,384	308,863
Oct.	1	21,512	28,274	49,592	193,025	12,235	304,638
Nov.	1	20,800	26,642	47,330	197,378	11,722	303,872
Dec.	1	23,866	25,972	51,309	198,564	11,021	310,732
1940							
Jan.	1	23,113	26,491	47,795	218,829	10,962	327,190

tie values were 21 months in the New England region, 10.5 months in the Great Lakes region, 7.9 months in the Central Eastern region, 9 months in the Northwestern region, and 14.1 months in the Central Western region, and 8.2 months in the Southwestern region.

On the same basis, store stocks on January 1, 1940, reflected a 5 months' supply in the New England region, 4.8 months in the Great Lakes region, 4.3 months in the Central Eastern region, 3.9 months in the Pocahontas region, 4.8 months in the Southern region, 5.6 months in the Northwestern region, 5.3 months in the Central Western region, and 3.4 months in the Southwestern region.

Iron and steel scrap on hand at the close of 1939 represented 3.4 per cent of the total inventory and when compared to the sales, the combined inventory of iron and steel scrap represented a turnover of scrap 4.9 times in 1939. Aggregate cross-tie stocks on January 1, including ties at treating plants and unapplied cross ties on the line of road, were equivalent to an outlay of approximately $240 per mile of road, while the new rail of stock represented about one ton per mile.

There were 34 railroads of the 121 reporting detailed figures whose material on hand exclusive of fuel, rail and cross ties on January 1 represented less than a 4 months' supply based on the monthly consumption in 1939. This stock reflected a 3.8 months' supply on the New York, New Haven & Hartford; 2.3 months' supply on the Delaware, Lackawanna & Western; 2.3 months' supply on the Erie; 3.5 months' on the Grand Trunk Western; 2.9 months' on the New York, Chicago & St. Louis; 3.5 months' on the Wabash; 2.4 months' on the Baltimore & Ohio; 2.9 months' on the Chesapeake & Ohio; 3.3 months' on the Chicago, St. Paul, Minneapolis & Omaha; 2.1 months' on the Alton; 3.2 months' on the Chicago, Burlington & Quincy; 3 months' on the Northern Pacific; 3.8 months' supply on the Texas & New Orleans.

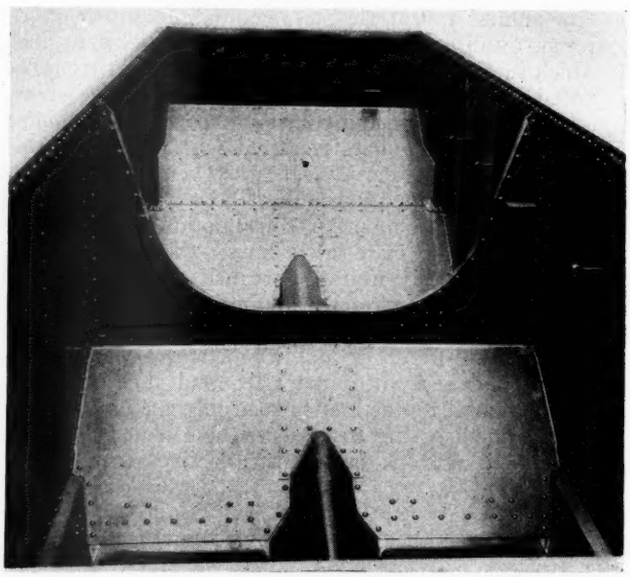
Total materials in the hands of the Class I railroads on January 1, 1940, were equivalent to 10.9 per cent of total operating expenses in 1939. As compared with this, the ratio of total inventories to annual operating expenses was 6 per cent on the D. L. & W.; 5.8 per cent on the Erie; 5.9 per cent on the N. Y. C. & St. L.; 7.3 per cent on the Wabash; 5.4 per cent on the B. & O.; 6.6 per cent on the C. & O.; 4.6 per cent on the C. G. W.; and 5.9 per cent on the Terminal of St. Louis. For further comparisons, with previous years reference is made to the *Railway Age* of April 15, 1939.

Lightweight Hopper Cars For the D. L. & W.

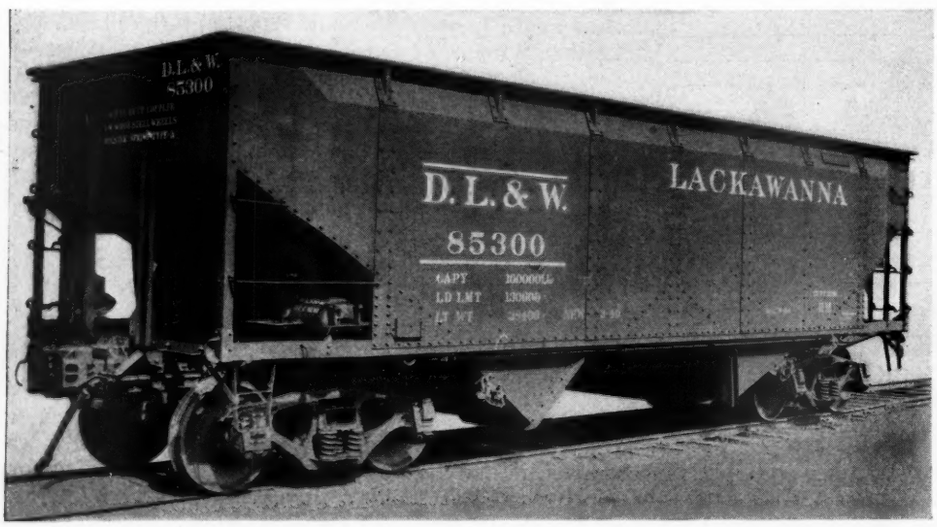
THE Delaware, Lackawanna & Western recently placed in service a group of 500 fifty-ton hopper cars designed to obtain a high ratio of revenue load to total loaded weight. These cars were built by the American Car and Foundry Company. They are generally of the riveted type of construction and by careful attention to design details, together with the use of low-alloy high-tensile steels, a saving in light weight was accomplished resulting in a reduction of 3,200 lb. as compared with the 50-ton A. A. R. standard hopper car built of open-hearth steel.

The center sill is built up of A. A. R. open-hearth steel Z-sections weighing 36.2 lb. per ft. These have the top flanges welded along the center line for the full length of the car. The side sills are 5-in. by 3½-in. by ¼-in. angles. The body bolster is a 20-in., 85-lb. I-beam, of open-hearth steel, with the top flange bent over to accommodate the slope of the floor sheets.

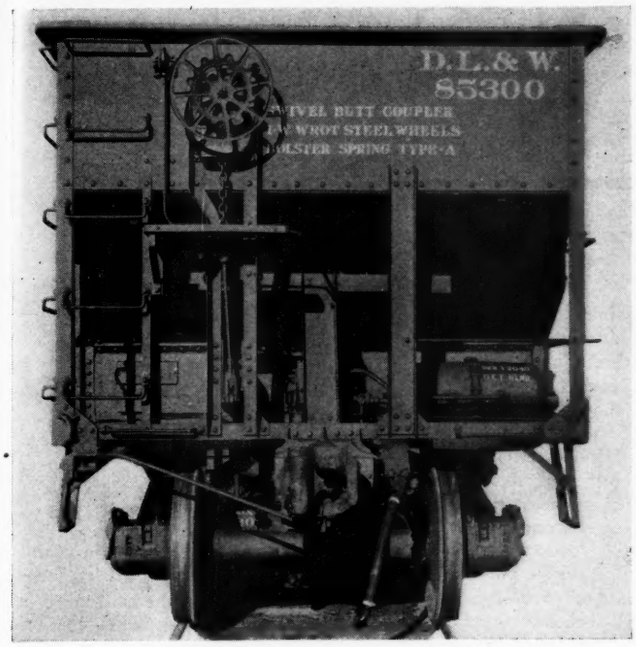
The car body is constructed of USS Cor-Ten steel. For the end sheets, hopper sheets, floor sheets and cross



The Car Interior—An Interesting Arrangement of Crosstie Over the Cross Ridge is Shown



One of 500 Hopper Cars of 50 Tons Capacity Built by The American Car and Foundry Company in Which Special Design Features and the Use of Low-Alloy High-Tensile Steel Resulted in a Car Having a Light Weight of 38,400 Lb. and a Ratio of Revenue Load to Gross Weight of 77.34 Per Cent



The Car End, Showing the I-Beam Body Bolster, Slope-Sheet Bracing and Brake Equipment

ridge, the material is 5/16 in. thick. The side sheets are of 5/32-in. material. USS Man-Ten steel is used for cylinder supports, draft-gear carriers, cross-ridge ties, sides and end sills. Cor-Ten is also used for the side and end top-cord bulb angles and for the side stakes.

The cars are equipped with Dreadnaught hopper doors and the Enterprise hopper-door mechanism. The draft gears are Miner Type A-22-X-B, and the couplers Symington Type E swivel-butt bottom-unlocking type, with Union centering devices and the Standard Railway Equipment Company's uncoupling device.

The cars are carried on Symington-Gould four-wheel trucks having cast-steel truck bolsters and cast-steel side frames with journal boxes cast integral. The wheels are Carnegie-Illinois one-wear wrought steel. Other truck equipment consists of Stucki side bearings, Cardwell snubbers, Creco No. 15 brake beams, and Schaefer brake hangers and bottom connections. The air-brake equipment is the AB type furnished by Westinghouse and the hand brakes are Ajax. The principal weights and dimensions appear in the table.

Principal Dimensions, Weights and Capacity of D. L. & W. Hopper Cars

Length over strikers, ft.-in.	35-1
Length inside, ft.-in.	34-0
Width inside, ft.-in.	10-1
Width over top chord angles, ft.-in.	10-2¾
Height, rail to top of side, ft.-in.	10-7⅞
Height, bottom side sill to top of chord angle, ft.-in.	7-3⅛
Truck centers, ft.-in.	25-0
Lightweight, lb.	38,300
Weight of body, lb.	24,368
Weight of trucks, lb.	13,932
Load limit, lb.	130,700
Capacity, level full, cu. ft.	2,151
Capacity, with 10-in. heap, cu. ft.	2,430
Ratio, revenue load to gross weight, per cent	77.34

THE SWEDISH STATE RAILWAYS, after devoting 27,000,000 kronor, or about $6,750,000, to renewal funds, and paying interest on state capital invested of 33,000,000 kronor, or about $8,250,000, report a net surplus for 1939 of 39,000,000 kronor, or about $9,750,000, as compared with only 13,000,000 kronor, or about $3,250,000, for 1938. Gross revenues rose by 33,000,000 kronor, or about $8,250,000.

S. 2009 Conferees Still Waiting for Wheeler

(*Continued from page 629*)

sion of business from the water carriers, Mr. Ryan went on, "will throw thousands of our members out of employment . . ." Thus he urged that Mr. Harrington "not only oppose this legislation," but also vote against the conference report unless it contains the so-called Wadsworth amendment. The latter, like the Miller amendment in the Senate version, would prohibit the Interstate Commerce Commission from preventing a reduction in rates provided the carrier proposing the cut could show that the lower charge would cover all elements of cost including overhead.

Representative Culkin's Remarks

Into the appendix to the April 2 issue of the Record went a lengthy "extension of remarks" by Representative Culkin, Republican of New York. Mr. Culkin addressed himself to a recent statement from Representative Van Zandt, Republican of Pennsylvania, who had cited pronouncements from farm organizations in support of such legislation as is proposed in S. 2009. "Every one of the resolutions" cited by Mr. Van Zandt, Mr. Culkin asserted, "was passed before the Wheeler-Lea bill saw the light of day." All of them, he added, were dated in 1938—"in other words, the gentleman gives the bill a prenatal baptism, cleansing it of all sin. He dusts off some old resolutions obtained by the railroad lobby and attempts to give agricultural sanction to a bill which every major organization in agriculture has condemned most vigorously since its introduction."

Proceeding to present "the true position" of organized agriculture, Mr. Culkin called the roll "of the leading farm organizations." He listed 11 organizations and the Department of Agriculture among the bill's opponents; and went on to refresh the recollection of his colleagues with "a brief history of the Wheeler-Lea bill and its present status."

"Three bills," the gentleman from New York recalled, "were introduced in the House—the Lea bill, said to be drawn by the brotherhoods and the railroad executives, which divided the country up like a captured province; the Fletcher bill, drawn by a railroad attorney; and the Wheeler bill, introduced in the Senate which provided for a codification of existing law. The Lea and Fletcher bills were merged and passed by the House with four important and saving amendments. The Wheeler bill passed the Senate and both bills were sent to conference.

All this occurred in the last session of this Congress. For practically four months this bill has been in conference, with the conferees meeting almost daily. It is difficult to get information as to what has occurred, but there is a well-founded rumor that all of the saving amendments written into the bill by the House have been eliminated, and at present the legislation ties every form of transportation into a hard knot in the interest of the railroads."

In closing Mr. Culkin noted that the farm-organization resolutions cited by him urged a waiting period of 30 days between the filing of the conference report and its consideration by the House. He trusts that Congress "charged with the responsibility for providing adequate low-cost transportation to the people" will insist on such a waiting period. Personally, Mr. Culkin feels that Congress "will prove true to the trust reposed in it by the people."

NEWS

South Misled In Rate Plaint

Pelley explains that, while 1st class rates are higher, its commodity rates are low

"Partial and distorted" pictures of the so-called railroad freight rate discrimination against the South were criticized on April 3 by J. J. Pelley, president of the Association of American Railroads, in an address at Savannah, Ga. Speaking at a luncheon sponsored by the Savannah Kiwanis Club and the railroads of that city, Mr. Pelley said that the impression that Southern freight rates generally are higher than those in the East is usually the result of an arithmetical comparison of the first class rate. Such comparisons, he declared, do not present the situation as it is.

Mr. Pelley explained that much of the traffic in the East moves on what are known as class rates, while in the West and South, which are great producers of basic commodities such as agricultural products, lumber and the like, the great bulk of all freight moves on special commodity rates which are so fixed that these commodities can reach distant markets. "While the basis of freight rates differs in the different territories," Mr. Pelley continued, "it happens that the average revenue received by the railroads for hauling a ton of freight a mile is just about the same in each of the territories. In the East (excluding the Pocahontas region), the average in 1939 was 1.009 cents per ton mile; in the South (also excluding Pocahontas), it was 1.000 cents; in the West, it was 1.002 cents. The Pocahontas region, lying between the East and the South, is excluded in this calculation because of the specialized traffic of the railroads in that region, consisting largely of coal, generally moving in solid train lots."

The average revenue per ton-mile, although not an absolute accurate way to measure relative freight rates, does indicate that what the shipper in each section pays to get an average ton of goods moved one mile is just about the same, Mr. Pelley said.

"However," he added, "that does not mean that this average payment is distributed in the same way over all the different commodities which move. As the Interstate Commerce Commission has pointed out in numerous cases, the relatively higher class rates in the South and the West make possible a lower level of commodity rates in those territories than might otherwise be possible. It should also be noted that those products on which special commodity rates are provided are generally those commodities which most vitally involve the welfare of the territory."

Referring to the railroad industry's importance to the economic and social life of the South, Mr. Pelley said that the railroads in that region have progressed tremendously in the past 40 years. They add to the section's wealth through purchases and wages totaling millions of dollars annually, and support the ordinary functions of government by the payment of large sums in taxes, he stated. Since 1900, he went on, railway mileage in the South has increased 50 per cent, and the amount of double track has grown from 264 miles to 6,332 miles. The average speed of freight trains in the Southern states has stepped up 56 per cent; the average load of freight carried in a train has increased 28 per cent, and the efficiency of railroads in the South, as measured by the number of tons moved a mile for each hour that the average freight train is on the road, has doubled.

Railroad purchases of fuel, materials and supplies in ten Southern states total nearly $120,000,000 a year, Mr. Pelley pointed out, adding that this money "goes to enrich the channels of trade in more than 3,000 Southern towns." Railroad payrolls in the South amount to approximately $300,000,000 a year, and railroad taxes in this section are approximately $45,000,000 a year.

"But great as are all these contributions to Southern progress and prosperity," Mr. Pelley said, "they are insignificant as compared to the railroads' major contribution —the low cost, mass transportation upon which Southern agriculture and industry depend for the collection of raw materials and the wide distribution of products. The experiences of the past winter have proved again, if further proof were needed, that only on railroads is it possible to move every sort of freight, in all seasons of the year, to all sections of the country, at rates which are equal to all and known to all, and at an average revenue of less than one cent for moving a ton of freight one mile."

As to the national transportation question, Mr. Pelley saw the answer in the creation of a fair field in transportation. He expressed the hope that this session of Congress will enact legislation toward that end, but declared that the problem will not be solved "until the national and state governments adopt a policy of treating all agencies of transport alike, and by alike I mean alike in matters of taxation, regulation and public policy generally."

Engel Tells Oil Men About RRs

Contrasts government treatment of them with that of trucks and pipe-lines

With no underestimating "the value of the automotive industry in all its forms to the oil industry and to the railroads," E. J. Engel, president of the Santa Fe, told a meeting of petroleum refiners in Wichita on April 1 that the relationship between various agencies of transportation would have soon to be put upon a basis which will "permit them all to live" or railways will decline to "a limited mileage which may have a general strategic importance."

"The trend downward of railroad gross earnings and the trend upward of railroad expenses and taxes which has been going on for some years must be changed shortly if you are going to have the benefit of operation of all the railroad mileage now in your territory, because, whether owned privately or by the government, sooner or later mileage which will not pay its way must pass out of the picture. It seems to me some solution of the problem is not impossible, but quite likely it will have to be looked at less selfishly than today."

Pointing out that he knew something of the "tribulations" of the trucking industry, "because we happen to own the capital stock of a company which has a 5,000-mile common carrier truck line," nevertheless he believed the railroad situation to be much more difficult.

"The railroads have had to acquire their right-of-way, build all their facilities from grading and excavating, ties, rails, ballast, signal systems, and crossing protection, at their own cost. Then of course they must maintain all these at their own cost. With all these things bought and paid for in some way, they then are ready to operate their vehicles of transportation. For the Santa Fe alone 850 million dollars have been so invested. Without any thought of being critical here, I call attention to two important facts:

"One, that to go into the trucking business, so far as first cost is concerned, requires only the providing of the vehicles of transportation for use on the major part of the streets and highways of the nation improved by government investment of 18 billion dollars since 1920 alone, and continuing at the rate of about 2 billion dollars per annum. No maintenance,

(*Continued on page 645*)

Two Months N. O. I. Was $78,373,416

2.78 per cent return compares with $51,584,878 or 1.83 per cent last year

Class I railroads of the United States in the first two months of 1940 had a net railway operating income of $78,373,416 which was at the annual rate of return of 2.78 per cent on their property investment, according to the Bureau of Railway Economics of the Association of American Railroads. In the first two months of 1939, their net was $51,584,878 or 1.83 per cent, and in the first two months of 1930, it was $113,013,227 or 3.79 per cent on property investment. The February net was $32,617,743 or 2.24 per cent, compared with $18,637,706 or 1.28 per cent in February, 1939, and $58,367,529 or 3.72 per cent in February 1930.

Gross operating revenues for the first two months totaled $658,973,031 compared with $582,683,101 for the same period in 1939, and $868,785,724 for the same period in 1930, an increase of 13.1 per cent in 1940 above 1939, but 24.2 per cent below 1930. Operating expenses amounted to $497,859,925 compared with $453,566,382 for the same period in 1939, and $679,039,178 for the same period in 1930—9.8 per cent above the former but 26.7 per cent below 1930.

Class I roads in 1940's first two months paid $61,215,733 in taxes compared with $56,676,350 in the same period in 1939, and $57,179,390 in the same period in 1930. For February alone the tax bill amounted to $29,849,734, an increase of $2,213,332 or eight per cent above February, 1939. Twenty-nine Class I roads failed to earn expenses and taxes in the first two months of 1940, of which eight were in the Eastern district, six in the Southern district and 15 in the Western district.

Gross for February amounted to $313,474,813 compared with $276,904,334 in February, 1939, and $422,864,774 in February, 1930; operating expenses totaled $240,518,919 compared with $220,619,933 in the same month in 1939, and $326,700,317 in February, 1930.

The Eastern district net for the two months was $51,197,201, or 3.27 per cent; for the same period in 1939, it was $36,904,226 or 2.36 per cent, while in 1930, it was $65,166,356 or 4.76 per cent. Gross in the Eastern district for the two months totaled $340,508,825 an increase of 15.9 per cent compared with 1939, but a decrease of 22.7 per cent compared with 1930. Operating expenses totaled $247,692,715 an increase of 12.9 per cent above the same period in 1939, but a decrease of 27.1 per cent under the first two months of 1930. The Eastern district net for February was $21,005,660 compared with $14,999,227 in February, 1939, and $32,227,201 in February, 1930.

Class I roads in the Southern district for the first two months of 1940 had a net railway operating income of $12,831,217, or 2.68 per cent on their property investment. For the same period in 1939, their net amounted to $10,901,289 or 2.28 per cent, and for the same period in 1930 it was $15,651,613 or 2.94 per cent. Gross in the Southern district for the two months amounted to $92,057,506 an increase of 11.2 per cent compared with the same period in 1939, but a decrease of 21.1 per cent under the same period in 1930; operating expenses totaled $68,852,480 an increase of 10.7 per cent above the same period in 1939, but a decrease of 24.9 per cent under 1930. February's net in the Southern district was $6,483,736 compared with $4,790,715 in February 1939, and $8,074,668 in February 1930.

In the Western district the net for the first two months was $14,344,998 or 1.85 per cent; for the same period in 1939, it amounted to $3,779,363, or 0.49 per cent, and for the same period in 1930 it was $32,195,258 or 2.99 per cent. Gross in the Western district for the first two months in 1940 amounted to $226,406,700, an increase of 9.9 per cent above the same period in 1939, but a decrease of 27.4 per cent below the same period in 1930. Operating expenses totaled $181,314,730, an increase of 5.4 per cent compared with the same period in 1939, but a decrease of 26.8 per cent under the same period in 1930. For February alone, the Class I roads of the Western district had a net of $5,128,347 compared with an operating deficit in February, 1939, of $1,152,236 and an operating income in February, 1930 of $18,065,660.

CLASS I RAILROADS—UNITED STATES

Month of February

	1940	1939	1930
Total operating revenues	$313,474,813	$276,904,334	$422,864,774
Total operating expenses	240,518,919	220,619,933	326,700,317
Taxes	29,849,734	27,636,402	28,239,638
Net railway operating income	32,617,743	18,637,706	58,367,529
Operating ratio—per cent	76.73	79.67	77.26
Rate of return on property investment	2.24	1.28	3.72

Two Months Ended February 29

Total operating revenues	$658,973,031	$582,683,101	$868,785,724
Total operating expenses	497,859,925	453,566,382	679,039,178
Taxes	61,215,733	56,676,350	57,179,390
Net railway operating income	78,373,416	51,584,878	113,013,227
Operating ratio—per cent	75.55	77.84	78.16
Rate of return on property investment	2.78	1.83	3.79

Southern Tidewater Coal Rates Upheld

I. C. C.'s 6 to 5 decision is accomplished by vigorous Eastman dissent

Dismissing the complaint of the so-called Property Owners' Committee of Southernfields coal producers and shippers, the Interstate Commerce Commission in a six-to-five decision has found that rates on bituminous coal from mines in Southern West Virginia, Virginia, and Eastern Kentucky to Hampton Roads, Va., for transshipment by vessel to destinations outside the Virginia capes, and dumping charges at Hampton Roads are not unreasonable. Dissenting expressions came from Chairman Eastman and Commissioner Rogers, with the former recalling in vigorous language the reluctance with which the commission authorized the Ex Parte 115 increases on coal in the face of the failure of the Pocahontas lines to agree to some redistribution of the resultant revenues for the benefit of more needy roads.

Among other things the chairman recalled how the commission had said in Ex Parte 115 that it "shocks the conscience" that to meet the needs of other railroads "the revenues of the Pocahontas lines 'should be swollen by more than $6,000,000 which they do not need and which will not be used for any betterment of the general railroad situation'." The railroads, Mr. Eastman added, "curtly rejected the opportunity to relieve the conscience in this respect." Thus he would have the commission relieve it "in the only way now possible—by eliminating the (Ex Parte 115) increase of 11 cents a ton in defendants' rates." The complainants, on the basis of its cost evidence, contended that the assailed rates should be reduced 50 cents per ton. Commissioner Rogers would have ordered a reduction of 23 cents per ton, because he was convinced that the competition faced by complainants made the price they pay for transportation from the mines to the port "in excess of the value of service performed by defendants."

Chairman Eastman said that Commissioners Caskie (resigned effective April 1) and Alldredge joined in his expression, while the dissent of Commissioner Splawn was noted. The case was docketed as No. 27669, Property Owners' Committee et al v. Chesapeake & Ohio Railway Company et al. Among other things the majority decision based the dismissal of the complaint upon "infirmities in complainants' cost figures," and the general lack of evidence warranting a finding condemning the assailed rates as unreasonable. It added that this conclusion was warranted "irrespective of the effect that a condemnation of these rates would have upon the rates of Northern carriers;" but it went on to say that the majority was "fortified in our conviction . . . when we consider, as we should, the harmful effect that a material reduction in these rates would have upon the rates of the Northern carriers."

In the latter connection the intervening Northern roads stated "positively" that if

the Pocahontas lines were required to reduce their rates to tidewater, they (the Northern roads) would protect their interests by reducing their rates from Northern mines to Baltimore, Md., for outside the capes, to Philadelphia, Pa., for outside and inside the capes, to New York for transshipment, and the all-rail rates to New England.

The majority report in the main is divided into discussions of the operating conditions and cost-of-service evidence with respect to the traffic involved, the rates from the Northern fields and traffic volume from Southern and Northern fields; also, there are comments on the competition from other fuels encountered by bituminous coal and the value of the rail service to complainants. The only evidence as to the cost of transporting coal from the Southern fields to Hampton Roads was that presented by complainants; defendants "made no cost study of their own and contented themselves with criticizing and revising the computations made by complainants." After revisions of their estimates in the light of the defendants' evidence and criticisms, the complainants arrived at the following figures for the "full distributed cost" per long ton of handling the traffic; Chesapeake & Ohio, $1.88; Norfolk & Western, $2.07; Virginian $2.27. The average rates charged in 1937, including the 5-cent dumping charge at tidewater were: C. & O., $2.62; N. & W., $2.58; Virginian, $2.57. This showing was the basis of the complainants' aforementioned contention that the rates should be reduced 50 cents per ton.

The majority, however, looked over the cost formula and noted such disabilities as the failure to include any allowance for the annual deficit on passenger operations, and the assumption that 1936 expenses for maintenance of way, structures and equipment were normal and typical. All in all, as the report's conclusion later put it, the majority could not accept the cost evidence "as representing even the approximate cost of the transportation service under the rates assailed." In support of its stand that the effect on the Northern lines should also be considered, the commission cited the Ex Parte 115 decisions, mentioned also in Chairman Eastman's dissent as noted above.

Mr. Eastman suggested that the majority might have quoted "the ultimate conclusion then (in Ex Parte 115) reached with respect to these Pocahontas lines;" and he went on to supply the "shocks-the-conscience" language and that suggesting that some pooling plan should have been entered. He recalled that the increases were finally permitted to be published without expiration date, notwithstanding the fact that nothing was done in the way of pooling.

The chairman next inserted a long excerpt from his expression of partial concurrence in Ex Parte 115 wherein he discussed the coal rates of the Pocahontas lines. In that connection he again put forth the assertion that "the communistic avenue of approach" is for the railroads "a one-way street—we can travel up this street in approving rate increases, but they will not travel down it in sharing the results." While Mr. Eastman was aware of the majority's general finding that the record would not warrant a finding of unreasonableness, he was nevertheless persuaded that had it not been for the effect on the Northern lines, "more careful consideration would have been given to the cost of service evidence."

The chairman goes on to say that it is not difficult to lay stress on doubts and queries and thereby dismiss cost evidence as unconvincing; but he thinks it should be borne in mind in that connection "that complainants in a case like this labor under very great difficulties in producing costs of service without the cooperation of defendants or the commission . . . Here defendants, significantly enough, elected to withhold all cost of service evidence on their own account, and the commission did not use its powers to compel a full disclosure." In such circumstances, Mr. Eastman thinks, the doubts should be resolved in favor of complainants, who in his opinion did "remarkably well" considering the difficulties under which they were laboring. Even if a "wide margin" be allowed for possible errors, he added, the cost evidence "justifies the conclusion that the present rates are unreasonable, certainly to the extent that they include the 11 cents a ton which was added in 1937."

Next Mr. Eastman finds "in the main opinion" a showing of how the defendant railroads "were careful to show the comparatively low ton-mile earnings of the rates in issue." "This," he added, "is in accord with the custom of railroads, in defending rate cases before us, to show only the ton-mile earnings of traffic which loads heavily and only the car-mile earnings of traffic which loads lightly. By this time we ought to be able to discount this custom appropriately. It is well recognized that, of the two, car-mile earnings, which are not here shown of record, furnish the better test of the profitableness of freight rates, and that in the case of traffic which moves as this traffic moves, train-mile earnings furnish a still better test."

Finally, the chairman turned to what he believed to be "the real ground for the dismissal of this complaint, namely, the adverse effect which it is feared that a reduction in these rates might have on competing Northern carriers which are in financial need.". Then came his aforementioned suggestion for relieving the conscience by eliminating the Ex Parte 115 increase. If such a reduction or an even larger one, did spread to the Northern lines, he added, it may well be doubted that it "would be inconsistent in the long run with the best interests of the railroads"—in view of the fact that their coal traffic "is peculiarly vulnerable to the competition of other fuels and sources of power." "It is not unlikely," Mr. Eastman concluded, "that when history is written, the verdict will be that the railroads were unwise in their persistent refusal to do anything to meet this competition in their freight rates on coal."

As noted above, it was the competitive situation which prompted Commissioner Rogers to write his dissent favoring a cut of 23 cents per ton. "Complainants," he predicted, "cannot long continue to remain in the New England market under existing conditions, and an extensive cessation of their shipments thereto would very substantially reduce defendants' revenues." With respect to the effect on Northern carriers, Mr. Rogers had this to say: "The evidence as to the value of service and cost of service seems to me to require a reduction in these rates regardless of how they compare in level with rates which we have prescribed or approved in other territories or the effect such action may have upon the tidewater rates from the Northern fields."

I.C.C. Refuses to Permit Railroads to Bid for Rayon

Because it saw in the proposal the beginnings of a rate war which could only result in giving the winning carriers "unduly low revenues" from the high-class traffic involved, the Interstate Commerce Commission, Division 2, has ordered the cancellation of suspended schedules wherein the Norfolk & Western and Virginian proposed to establish a reduced all-rail commodity rate on rayon yarn, in carloads, from Roanoke, Va., to Lawrence, Mass. The stated purpose of the proposed rate was to meet motor truck competition.

The proceeding was docketed as I. & S. No. 4681, and the original proposal of the N. & W. and Virginian was a commodity rate of 75 cents, carload minimum 20,000 lb.; later they proposed the fourth class rate of 76 cents with a minimum of 30,000 lb. The reductions would have been subject to a tariff rule making them applicable from and to intermediate points over 11 routes, which rule would avoid violations of the long-and-short-haul clause. The commission pointed out that "no carload rates on rayon have hitherto been established by any of the rail carriers." In the official classification, which governs the application of rates from Roanoke to Lawrence, rayon is rated first class, any quantity. By exception to the classification it takes rates 72 per cent of first class, any quantity. The first-class Roanoke-Lawrence rate is 151 cents; the 72 per cent rate 109 cents. The latter was established in 1935 to meet motor competition, and it was met by motor carriers in 1936. The N. & W.-Virginia proposal of the fourth-class carload rate resulted from assurances received from a large shipper that such a rate would prompt him to use rail instead of truck service. The protestant motor carriers, the commission said, were also approached by a representative of the same mill "for a materially reduced rate . . . but they declined to grant the request because they could see no justification therefor." And "protestants regard the situation here considered as in the nature of an incipient rate war . . . which can only have destructive results, and which they appeal to us to avert."

Next, after a brief discussion of how the rayon industry "appears to be fairly well satisfied with the present any-quantity basis of rates," the commission had this to say:

"Respondents are here attempting to justify the initiation of a practice of making carload commodity rates on an article of relatively high value and risk of carriage; which is of light traffic density and

requires more than ordinary care in handling; and which has long been included among the articles that for transportation purposes can properly bear rates on the classification basis. To depart from that basis by establishing lower commodity rates in reference to a particular movement, such as is here proposed, would amount to a preference and break down the classification basis by the extension of reduced rates to other points that may be subjected to undue prejudice by the establishment of the proposed rate. The commission has frequently refused to find proposed reductions in rates justified when it was shown that they would be harmful to the rate structure as a whole, or as applied to a particular commodity. The maintenance of a rate structure that will require each class of traffic to bear a reasonable proportion of the total transportation revenues needed to adequately sustain the rail and motor carrier transportation systems, to the extent that they are essential in serving the public interest, is an administrative responsibility with which this commission is charged by statute.

"It is clear from the evidence here before us that there is no general demand or necessity from a shipper standpoint for further reducing the rates on rayon. Based on the experience of the past 10 years of competition between the rail and motor carriers for this particular traffic it seems more than likely that the only result of this threatened rate war, if not checked, will be to accord whichever class of carriers transports it unduly low revenues from the traffic, which in the ordinary course would probably have to be supplemented by exacting a greater toll on some other class or classes of traffic which could less afford to bear it."

R. C. Fulbright Dies

R. C. Fulbright, well-known Interstate Commerce Commission practitioner who had also been prominent in National Industrial Traffic League affairs, died on March 29 in Washington, D. C. He was 58 years old.

Bill to Pay Pensions to Victims of "Unfair Labor Practices"

Representative Patrick, Democrat of Alabama, has introduced H. R. 9196 "to grant retirement benefits to employees of railroad carriers who were forced out of service due to unfair labor practices of their employers."

No I.C.C. Probe of Central Territory L. C. L. Charges

Interstate Commerce Commissioner Clyde B. Aitchison has written a letter to Chester G. Moore, chairman of the Central States Motor Freight Bureau, saying that he had been directed by the commission to advise that the commission does not believe it would be wise at present to institute a general investigation of all Central-territory local and joint less-truckload, less-carload and less-than-volume minimum charges, rules, regulations and practices of truck, rail and water carriers. Such an investigation was asked by the Motor Bureau in a petition filed last May.

Commissioner Aitchison said also that he had been directed to call attention to the fact that any particular situation may be brought to the attention of the commission in the usual formal way. In closing he said: "It may be possible in time for the commission to undertake this investigation, but right now we cannot see how we can undertake it in the broad form you have indicated."

Bill Would Bar Carriers from Owning Newspapers

Senator Pepper, Democrat of Florida, has introduced S. 3656, a bill "to prohibit common carriers and other carriers from owning or acquiring any interest in a newspaper published in the United States." The prohibition would become effective one year after the bill's enactment date; and the maximum penalty for violation would be a $5,000 fine or 10-years imprisonment or both.

Would Exempt Ships From Canal Tolls

Representative Welch, Republican of California, has introduced in the House H. R. 9161, a bill to amend the Panama Canal Act. This bill is identical to one introduced recently by Senator Downey, Democrat of California, which bore the number S. 3627 and which was reviewed in the *Railway Age* of March 23, page 560. Both bills would exempt certain types of ships from the payment of tolls for the use of the canal.

Locomotive Historical Society Annual Dinner

The New York Chapter of the Railway and Locomotive Historical Society, Inc., will be addressed at its annual dinner on April 19 by Lawrence Sagle, of the department of public relations of the Baltimore & Ohio. The meeting, of a rather unusual nature, will be held in two dining cars of the B. & O., parked beside the Jersey City terminal of the Central Railroad of New Jersey.

Chicago Traffic Club Elects Officers

At the annual meeting of the Traffic Club of Chicago on March 28, the following officers were elected for the ensuing year: President, E. R. Gustafson, traffic manager of the Universal Atlas Cement Company; first vice-president, W. Haywood, freight traffic manager of the Illinois Central; second vice-president, A. H. Schwietert, assistant traffic director of the Chicago Association of Commerce; and third vice-president, E. B. Finegan, chief traffic officer of the Chicago, Milwaukee, St. Paul & Pacific.

N. Y. C. "Conscience Fund" $1,328 in Five Years

The New York Central's "conscience fund," receipts from persons who had stolen rides or property, amounted to $1,328.96 in the five years from 1935 to December 31, 1939. In 1939, 25 payments ranging from 50 cents to $20 were made for a total of $93.40. The 50 cents was for a trip made nearly 30 years ago. Another $3.50 came from a man who said his sister on her deathbed confessed she had cheated the railroad out of a fare for a child supposed to be under age. Another payment of $10 was for transportation furnished but not paid for in 1937.

The high mark in "conscience fund" receipts in the last five years was reached in 1936, when payments totaled $573.30. One payment of $200 was accompanied by a note indicating it was for goods taken from the railroad more than 20 years ago. It was received at the Central's Polk Street Station, Chicago. Another of $186 was forwarded by the pastor of a Catholic church in New York State, without explanation, but apparently in restitution for one of his parishoners. In 1936, $100 was received from the pastor of a Michigan City church, who sent it on behalf of a former railroad employee.

Asks Relief from Automatic Stoker Order

The Pittsburg, Shawmut & Northern has asked the Interstate Commerce Commission to be relieved from the automatic stoker order so that it may operate its old locomotives without automatic stokers up to April 15, 1944, the date when all heavy locomotives in high-speed service must be so equipped. The company contends, in its petition, that the engines that it now operates are in slow freight service and are not of sufficient value to justify the cost of installation of automatic stokers. The commission's order had decreed that one-fifth of each road's engines falling in the specified class, must be equipped each year so that all would be so equipped by April 15, 1944.

Status of H. & M. Employees

Examiner Burton Fuller has recommended in a proposed report that the Interstate Commerce Commission amend and interpret previous orders in Ex Parte No. 72 (Sub-No. 1) so as to exclude from Railway Labor Act coverage those Hudson & Manhattan employees who are engaged as elevator starters, elevator operators and information clerks in the Hudson Terminal buildings, 30 and 50 Church street, New York. This phase of the proceeding came about as a result of a petition filed in August, 1939, by the Building Service Employees International Union.

The Canadian Roads in February

Operating revenues of the Canadian National for February were $17,722,756, the highest for that month since 1930, compared with $13,069,775 in February, 1939, an increase of $4,652,981. Operating expenses were $15,959,568, against $14,357,117 during the similar period of last year, an increase of $1,602,451. There was a net operating revenue of $1,763,188 as compared with an operating deficit of $1,287,342 in 1939.

For the two months of the present year, operating revenues were $35,324,491, compared with $26,564,780 last year, an increase of $8,759,711. Operating expenses were $31,889,507, compared with $28,460,318 in 1939, an increase of $3,429,189. A net operating revenue of $3,434,984 is shown for the two months of this year, which compares with an operating deficit of $1,895,538 for 1939.

The Canadian Pacific in February re-

ported net operating revenues of $1,972,421, an increase of $1,739,154 over a year ago. At $11,915,419 gross was higher by $2,719,535, while the increase in operating expenses was held to $980,481.

For the two months, net operating revenues at $3,800,927 compared with $694,370 a year ago, an increase of $3,106,557. In gross the two-month increase was $5,265,017.

House Committee Approves Bill to Change Titles of Boiler Inspectors

The House committee on interstate and foreign commerce has voted to report favorably the bill (H. R. 8510) introduced by Chairman Lea to change the titles of chief inspector and assistant chief inspectors of locomotive boilers, respectively, to director of locomotive inspection and assistant directors of locomotive inspection.

The bill is identical with S. 3440 recently reported favorably from the Senate committee on interstate commerce, as noted in the *Railway Age*, of March 16, page 524.

C. G. W. Second Road Out of Receivership

The district court at Chicago, on March 26, confirmed a reorganization plan for the Chicago Great Western, which had previously been approved by the Interstate Commerce Commission and first mortgage and stockholders. As soon as minor technical details are cleared up, the road will pass from court control into private hands again. This is the second of the nation's railroads, which fell into bankruptcy after 1929, to be started again toward private control, the first being the Chicago & Eastern Illinois.

The court also confirmed the appointment of Harry C. Haggerty, representing the bondholders; William J. Sinek, the preferred stockholders; and Ralph M. Shaw, the trustees, as the reorganization committee which will select a temporary board of directors.

Would Save Jobs of Treasury's Traffic Section Staff

Representative Patrick, Democrat of Alabama, has introduced H. R. 9197 to provide appropriations "for continuance of functions and personnel in the Federal Traffic Section of the Procurement Division of the Treasury Department." The measure is designed to obviate the necessity for carrying out the plan (noted in the *Railway Age* of March 30, page 598) for trimming the Traffic Section's staff from 67 to 18 and decentralizing the government's freight-rate and shipment-routing work.

The bill would appropriate $165,000 for continuation of the centralized functions and retention of personnel during the remainder of the current fiscal year and throughout the fiscal year ended June 30, 1941.

Farewell Luncheon for Caskie

Marion M. Caskie, whose resignation as a member of the Interstate Commerce Commission became effective April 1, was tendered a luncheon on March 28 at the Raleigh Hotel, Washington, D. C., by the Washington Chapter of the Association of Interstate Commerce Commission Practitioners. Speakers included I. C. C. Chairman Joseph B. Eastman; Judge R. V. Fletcher, vice-president and general counsel of the Association of American Railroads; Wilbur LaRoe, president of the Practitioners Association; E. F. Lacey, executive secretary of the National Industrial Traffic League; J. Ninian Beall, counsel for American Trucking Associations, Inc.; and C. A. Miller, vice-president and general counsel of the American Short Line Railroad Association. Granville Curry, chairman of the Washington Chapter of the Practitioners Association, presided.

Bus Company Ordered to Bargain with Railroad Brotherhood

The National Labor Relations Board has ruled that a closed-shop contract made on April 15, 1938, between Pacific Greyhound Lines, affiliate of the Southern Pacific, and the Amalgamated Association of Street, Electric Railway & Motor Coach Employees of America (A. F. of L.) did not justify the company's refusal to meet and confer with the Brotherhood of Railroad Trainmen, or to grant it exclusive recognition as bargaining agency on behalf of the company's bus drivers.

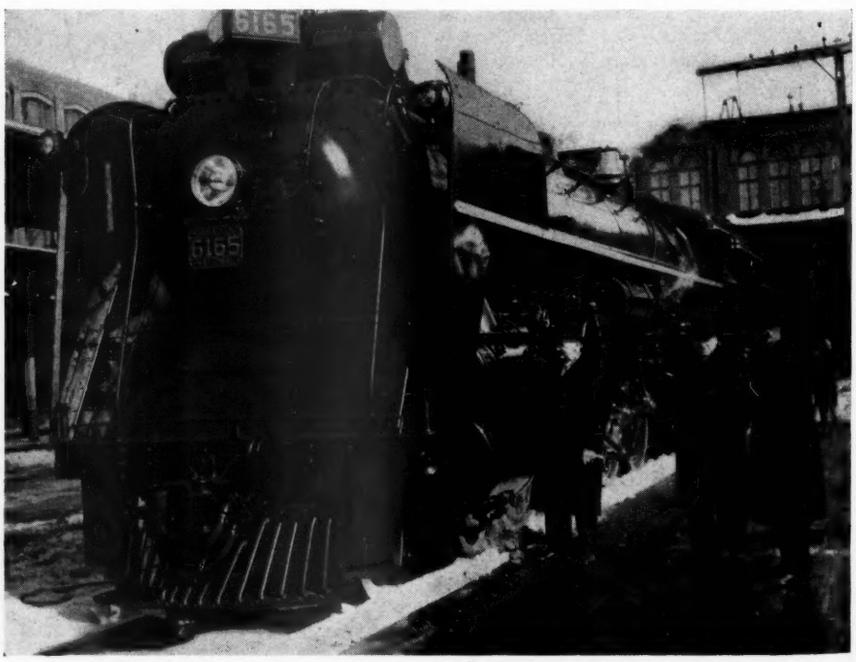
The B. of R. T. had been certified by the Board on March 10, 1939, upon the basis of a December, 1938, secret ballot election showing 364 bus drivers in favor of the B. of R. T. and 227 in favor of the Amalgamated. The Board, therefore, directed the company to bargain collectively, upon request, with the B. of R. T. as the exclusive representative of all its bus drivers. Thereafter, the N. L. R. B. announcement said, the company refused to treat or meet with the B. of R. T. as the exclusive representative of the bus drivers, contending that because of a contract made on April 15, 1938, with the Amalgamated as the exclusive representative of all its employees, it was under no duty to bargain collectively with the B. of R. T.

Concerning the alleged defection of a majority of the bus drivers to the Amalgamated after the company's refusal to recognize the B. of R. T., the Board held that such defection could not affect authority of the B. of R. T. to act as the certified representative where that organization never had a reasonable opportunity to represent the bus drivers. The Board asserted that in the instant case, "any other rule would result in employees being required to turn from representative to representative until some bargaining agency satisfactorily to the employer was found." Board Member William M. Leiserson did not participate in the proceeding.

New Locomotives for Canadian National

The first of an order of fifteen 4-8-4 locomotives was delivered to the Canadian National on March 21 by the Montreal Locomotive Works, Ltd. The plans and specifications for these locomotives were prepared under the supervision of John Roberts, chief of motive power and car equipment of the Canadian National. While similar in basic design to locomotives built by the same company for this railroad in 1929, the new locomotives have been modified to permit the installation of equipment not used on the older locomotives. The changes made include the installation of auxiliary engines on the trailer trucks, roller bearings on the engine, trailer, and tender trucks, and the application of smoke deflectors.

The locomotives have 73-in. drivers, 25½-in. by 30-in. cylinders, and the boilers carry a pressure of 250 lb. The total



Right to Left—S. J. Hungerford, Chairman and President, N. B. Walton, Vice-president of Operation, and John Roberts, Chief of Motive Power and Car Equipment, Canadian National, Inspecting the First of the New 4-8-4 Locomotives at Bonaventure Station, Montreal

weight of the engine and tender in working order is 686,700 lb. The tender loaded with 11,600 gallons of water and 20 tons of coal weighs 284,000 lb. The total weight of the engine of 402,700 lb. is 19,700 lb. more than the total weight of the engines built in 1929.

They have a tractive force of 57,000 lb. with an additional 10,000 lb. supplied by the auxiliary engine for starting and assisting over heavy grades. Although the locomotives are primarily intended for use in fast freight service, their characteristics make them adaptable also for use in heavy passenger service.

May Ask Washington-Agreement Coverage of Abandonments

The Railway Labor Executives' Association is considering plans for seeking an extension of the so-called Washington Agreement to cover employees affected by railroad abandonments along with the present coverage of those involved in consolidations or co-ordination projects, it was learned this week. It is understood that negotiations with railway management have not yet been formally opened, but preliminary work is going on in labor circles where some consideration is also being given to the seeking of larger benefits for the workers affected by mergers and coordinations.

The Washington Agreement, the terms of which were outlined in the *Railway Age* of May 30, 1936, page 885, was a five-year pact running from June 18, 1936, with provision for indefinite continuance beyond the June 18, 1941, expiration date unless terminated by either party upon one year's notice.

Cor-Ten Hopper Cars Show Low Weight Loss

Additional data supplementing tests already reported on the relative life of copper steel and corrosion-resistant high-tensile steel confirm the earlier claims of longer car life when high-tensile steel is used.

An eastern railroad weighed 100 hopper cars designed for handling coke when they were delivered and again after 40 months of service. A second group of 100 cars for similar service, built of USS Cor-Ten steel, were likewise weighed as received and again after 31 months of service.

The average initial weight of the copper steel cars was 54,390 lb. as compared to 41,978 lb. for the Cor-Ten bodies. After an average life of 39.8 months the average weight of the copper steel cars was 53,158 lb. while the Cor-Ten cars after 31.2 months of service averaged 41,570 lb. These figures show a loss of weight for the copper steel cars of 1,232 lb. or 30.94 lb. per car per month as against 408 lb. or 13.05 lb. per car per month for the Cor-Ten units, indicating that cars built of Cor-Ten lose weight less than half as rapidly as do similar copper steel cars.

Investigation indicated that the only other major cause of weight reduction would be loss of metal from the wheels. The cars under test were all equipped with rolled-steel multiple-wear wheels. No specific information is available regarding the difference in weight of wheels on these particular cars at the first and second weighings. It has been definitely established, however, that no substantial proportion of wheels was replaced on either class of cars.

If the average loss of weight of wheels had been definitely determined and deducted from the total loss of weight for each group of cars to obtain a closer estimate of the loss in weight due to corrosion, the comparison between the corrosion rates for the two types of material would have become even more favorable to the high-tensile steel.

House Committee Pigeonholes Postalization Resolutions

The House committee on interstate commerce on April 2 voted to postpone indefinitely the consideration of Senate Joint Resolution 58 and House Joint Resolution 152, which call for Interstate Commerce Commission investigations of the postalized-fare plan being promoted by John A. Hastings, former member of the New York State Senate. As noted in the *Railway Age* of August 5, 1939, page 226, S. J. Res. 58, which was introduced by Chairman Wheeler of the Senate committee on interstate commerce, passed the Senate last August 1 in a modified form which authorized but did not direct the I. C. C. to make preliminary study for the purpose of determining whether a complete investigation of the plan was warranted.

H. J. Res. 152 was introduced in the House on February 6, 1939, by Representative Lemke, Republican of North Dakota. When the resolutions were taken up by the House committee this week it is understood that some members favored the holding of hearings; but the majority were of the opinion that the postalization plan looked somewhat involved and impracticable, and that the I. C. C. would be too busy to take on the investigation—especially if its duties were to be augmented by the enactment of S. 2009.

Armour Summer Graduate Institute

A three-term Summer Graduate Institute for engineers, professional men, industrialists, and educators in engineering and science will be conducted by the Armour Institute of Technology Chicago, beginning with the summer of 1940. According to Dr. L. E. Grinter, vice-president and dean of the graduate division, who is in charge of the summer institute, each summer scientists of distinction will be invited to lecture on modern developments in engineering and science.

The institute is divided into seven divisions—advanced mechanics, chemical engineering and chemistry, civil and sanitary engineering, electrical engineering and physics, mechanical engineering, industrial engineering, and applied mathematics. The typical graduate course will meet for the equivalent of two hours' lecture daily, including Saturdays, for four weeks. Students will be permitted to carry only one course for credit during each period of four weeks, each such course being credited toward advanced degrees. The terms will be from June 17 to July 13; from July 15 to August 10, and from August 12 to September 7.

In future years the Summer Graduate Institute will be conducted under the direction of the Armour College of Engineering of the Illinois Institute of Technology. This will result from the merger of Armour and Lewis Institute, which is expected to become effective as of September 1940, and the subsequent changing of the name of the new combined colleges to the Illinois Institute of Technology.

Rejects Tariff Rule Giving Shipper 10 Days to Accumulate Truckload

The Interstate Commerce Commission, Division 5, has found unlawful a proposed tariff rule whereby certain motor carriers serving Seattle, Wash., and Spokane sought to increase from one day to a maximum of ten days the period during which freight may be consolidated for shipment without any charge for storage. The proposed rule was designed to meet the competition of forwarding companies, particularly the Manlowe Transfer & Distributing Co., which, the decision said, "permits shippers to store their goods free for an indefinite period of time pending consolidation into quantity lots which are accorded lower rates than individual shipments."

Among the protestants were rail carriers which "object to the rule because it fails to require the tender of a truckload shipment at one time." Also, the railroads were "apprehensive that the proposed arrangement would in time spread to numerous other points and compel them and other motor carriers to publish a similar provision in their tariffs." The proceeding was docketed as I. & S. No. M-529, and the majority report represents the views of Commissioners Lee and Rogers; Chairman Eastman dissented.

It seemed to the chairman that "what storage is 'necessarily incidental to transportation' is a question of fact rather than law." It was clear to him that "there is no transportation necessity which requires a railroad to hold (the usual) shipment on its premises a longer time than is required for loading purposes . . . or a longer time than is reasonable to enable the consignee to take delivery . . ."

"The storage here in question, however," Mr. Eastman went on, "is performed under quite different circumstances and conditions. It is of the nature of in transit storage, and intervenes between the pick-up service and the line-haul movement. The purpose of the storage is to enable the carrier to aggregate sufficient packages to move them in a single truckload and thus give the shippers the benefit of the economy of truckload service. This storage is not for the shipper's convenience or benefit with respect to anything other than transportation. Doubtless the shipper would prefer, other things being equal, to have his shipment moved without delay. He is willing, however, to have it held, possibly as long as 10 days, in order to get the benefit of the most economical movement. It seems to me that storage for such a purpose can properly be regarded as 'necessarily incidental to transportation'."

Mr. Eastman added that the carrier should receive "reasonable compensation for

the service as a whole;" but he found no evidence "that the compensation, consisting of the line haul rate and the pick-up charge, is less than reasonable."

Rivers and Harbors Bill Now $231,000,000 Measure

Following through on its recently-indicated disposition to disregard the advice of President Roosevelt, the Senate committee on commerce on April 2 voted to report a $231,000,000 rivers and harbors authorizations bill. At his regular Tuesday-afternoon press conference later in the day, the President, who recently told a commerce-committee delegation that he was opposed at this time to adding further authorizations to the already-huge backlog awaiting appropriations, revealed that he had also told that delegation that he would sign a $200,000,000 authorizations bill if it were accompanied by legislation canceling $250,000,000 of previous authorizations.

The committee action ordering a reporting of the $231,000,000 bill was by a twelve-to-four vote, details of which were made public by Senator Vandenberg, Republican of Michigan, who was among the dissenting quartet. He said he felt that authorizations for new projects should be postponed until a way was found to pay for those already authorized. Others voting in the negative were Senators Clark of Missouri and Maloney of Connecticut, Democrats, and Senator Johnson of California, Republican. Voting in favor of reporting the bill were Chairman Bailey of North Carolina and Senators Caraway of Arkansas, Overton of Louisiana, Bilbo of Mississippi, Pepper of Florida, Sheppard of Texas, Lee of Oklahoma, Hill of Alabama, and Mead of New York, Democrats; and Minority Leader McNary of Oregon and Senators Gibson of Vermont and Barbour of New Jersey, Republicans.

As noted in recent issues of *Railway Age* where previous Senate-commerce-committee maneuvers in connection with it have been reported, the bill is H. R. 6264 which passed the House with authorizations totaling $83,000,000 and originally came from the Senate committee as a $412,000,000 measure. The latter was recommitted for trimming and the present $231,000,000 measure, covering only navigation projects, is the result of what pruning work the committee found itself able to do. The largest of the authorizations included in the $231,000,000 total is the $66,000,000 for the so-called Tennessee-Tombigbee project, designed to connect the Tombigbee and Tennessee rivers.

I.C.C. Prescribes Motor Certificate Terms and Conditions

The Interstate Commerce Commission's Division 5, has voted to adopt and prescribe certain special terms, conditions and limitations which are to be attached to the exercise of the privileges granted in all the certificates of common carriers of property by motor vehicle authorized to transport general commodities over regular routes.

The purpose, says a notice from I. C. C. Secretary W. P. Bartel, is to define some of the words used in certificates such as "general commodities," "special facilities," to clarify the principles applicable to the combination of separately described routes and of interchange at points which, though physically common to the routes of two or more carriers, may not lawfully be served by one or more of them, and to make provision for the name under which a carrier may conduct his business. The terms, conditions and limitations specifically set forth in the main body of any certificate govern these general ones in case of conflict.

The list of terms, conditions and limitations follows:

Item 1—A certificate authorizes operations only under the name in which it is issued.

Item 2—A certificate authorizing the transportation of "general commodities" includes the right to transport all types of property capable of, or suitable for, transportation by ordinary motor vehicle, but, unless specifically so provided in the certificate, does not authorize the use of special facilities or special motor vehicles in the transportation of any commodity, nor the transportation of—

(a) commodities which by reason of length, width, weight, height, size, or other physical characteristic, require the use of special devices, facilities or equipment for their loading or unloading; or

(b) commodities which require special facilities or special motor vehicles for adequate, efficient or safe transportation, or for protection, except as against heat or cold.

Item 3—The term "special facilities", as used in Item 2, means facilities in addition to or other than those required or used in ordinary packing, crating, or handling, and the term "special motor vehicle", as used in the same item, means a motor vehicle so designed and constructed, or equipped with appliances so designed and constructed, as to provide facilities other than those afforded by the floors, sides, and tops of ordinary motor vehicles. The following, among others, are deemed to be special motor vehicles or motor vehicles embodying special facilities. Tank trucks, dump trucks, armored trucks, household goods moving vans, pole trailers, and "haul-a-ways" or trucks designed especially for hauling automobiles or similar articles.

Item 4—A certificate authorizing operations over two or more routes which have one or more points in common authorizes operations over all combinations of such routes and between all points thereon over the routes specifically described in the certificate.

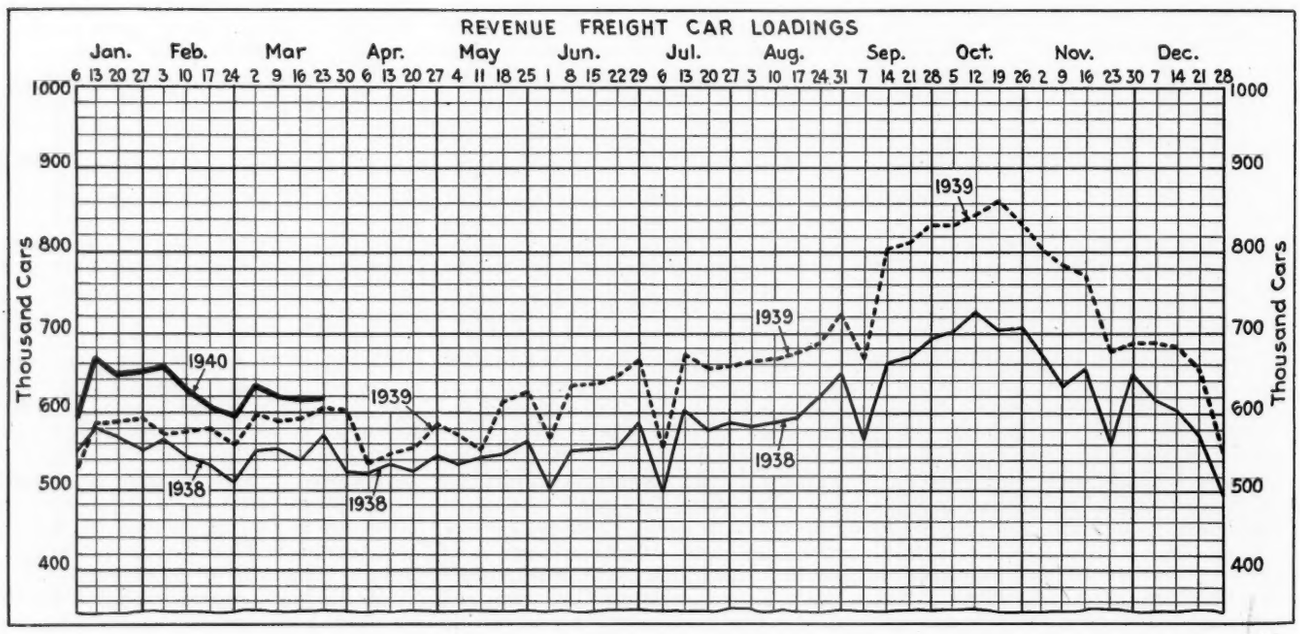
Item 5—A certificate authorizing service to or from any point or place, includes the right to interchange shipments at such point or place with other common carriers of property possessing similar authority in respect of the property they transport. Unless a certificate contains authority to serve a point or place, the carrier holding such certificate is not authorized to originate or ttrminate shipments, or to interchange shipments with other carriers, at such point or place.

Item 6—In the event of any conflict between the special terms, conditions, and limitations set forth in the various items of this appendix and the provisions in the main body of a certificate the latter shall govern in all instances.

Freight Car Loading

Revenue freight car loading for the week ended March 30 totaled 628,278 cars, the Association of American Railroads announced on April 4. This was an increase of 8,392 cars, or 1.4 per cent, over the preceding week, an increase of 27,587 cars, or 4.6 per cent, above the corresponding week last year and an increase of 104,789 cars, or 20 per cent, over the comparable 1938 week.

As reported in last week's issue, loading of revenue freight for the week ended Saturday, March 23, totaled 619,886 cars, and the summary for that week, as com-



piled by the Car Service Division, A. A. R., follows:

Revenue Freight Car Loadings

For Week Ended Saturday, March 23 Districts	1940	1939	1938
Eastern	136,242	135,612	122,482
Allegheny	125,821	120,568	105,411
Pocahontas	44,799	39,885	33,652
Southern	99,965	97,811	94,941
Northwestern ..	71,987	70,206	70,216
Central Western.	96,205	93,050	96,995
Southwestern ...	44,867	44,816	49,255
Total Western Districts	213,059	208,072	216,466
Total All Roads.	619,886	601,948	572,952
Commodities			
Grain and grain products	31,441	31,679	37,898
Live stock	10,797	11,315	10,619
Coal	118,034	110,278	81,422
Coke	8,541	7,163	4,096
Forest products..	33,346	28,121	27,501
Ore	10,444	7,577	7,649
Merchandise l.c.l.	147,685	153,719	152,811
Miscellaneous ..	259,598	252,096	250,956
March 23	619,886	601,948	572,952
March 16	618,985	591,166	540,365
March 9	620,997	588,426	556,730
March 2	634,410	594,424	552,892
February 24 ...	595,032	556,742	511,939
Cumulative Total, 12 weeks	7,536,556	6,947,560	6,635,192

In Canada.—Carloadings for the week ended March 23 (which included the Good Friday holiday) totaled 40,989 as compared with 46,996 in the previous week and 44,132 last year, according to the compilation of the Dominion Bureau of Statistics.

	Total Cars Loaded	Total Cars Rec'd from Connections
Total for Canada:		
Mar. 23, 1940	40,989	24,146
Mar. 16, 1940	46,996	24,563
Mar. 9, 1940	47,438	25,293
Mar. 25, 1939	44,132	21,609
Cumulative Totals for Canada:		
Mar. 23, 1940	560,913	289,871
Mar. 25, 1939	485,334	254,338
Mar. 26, 1938	539,423	264,420

A.A.R. Considers Move to Cut Unemployment Taxes

Directors of the Association of American Railroads at a Washington, D. C., meeting on March 29 considered plans for seeking a reduction in the annual payroll tax of approximately $60,000,000 levied under the Railroad Unemployment Insurance Act. Because it is estimated that benefit payments under the Act for the fiscal year ended next June 30 will amount to only about $20,000,000 the directors initiated plans for negotiations with railroad labor for an agreement on a reduction in the present unemployment insurance tax rate of three per cent.

Railroad labor is expected to counter with proposals for an increase in the unemployment insurance benefits; and some suggestions along that line are understood to have been submitted to railway labor and management by the Railroad Retirement Board. As noted in the *Railway Age* of March 23, page 559, Chairman Murray W. Latimer of Retirement Board recently told a sub-committee of the House committee on appropriations that consideration might be given to increasing the unemployment insurance benefits, which "the fund is well able to do."

While the situation is difficult to forecast because a flurry of unemployment can readily upset the estimates, the A. A. R. Board had before it data indicating that the unemployment insurance fund's balance as of next June 30 will be around $150,000,000. That figure includes approximately $100,000,000 expected to be transferred from State unemployment insurance funds to cover amounts collected from the carriers while they were still subject to the Social Security Act, i. e., prior to the passage of the Railroad Unemployment Insurance Act.

President Has "File" of I.C.C. Candidates

Asked at his April 2 press conference whether or not he had anyone in mind for the vacancy on the Interstate Commerce Commission caused by the recent resignation of Commissioner Caskie, President Roosevelt said that he did not, but that he was forming a file of recommended candidates.

Meanwhile, Southern senators have lost no time in recommending to the President that he choose a Southerner who would be favorable to lower freight rates for that section of the country. Senator Russell, Democrat of Georgia, has urged the appointment of John M. Cooper of Atlanta, Ga. Senator Russell has been quoted as saying that Mr. Cooper is "probably one of the best authorities in the country on freight rates and a man who understands the South's problems."

At the same time, although he had no definite candidate in mind, Senator Harrison, Democrat of Mississippi, told President Roosevelt that the South was interested in having the vacancy filled by a Southerner. The Mississippian went on to say that Southern senators were trying to form a united front to obtain the appointment of a Southerner. Mentioning the five-to-four decision in the so-called Southern Governors' Rate Case, Senator Harrison pointed out that Southerners were more interested in the appointment than they had been heretofore.

Up to the time of Commissioner Caskie's resignation on April 1, four members of the commission have been credited to the Southern states. Both Commissioner Caskie and Commissioner Alldredge were credited to Alabama, while Commissioner Splawn comes from Texas and Commissioner Rogers is listed as a Tennesseean, although he has lived in Washington many years as an employee of the commission.

Hopkins Suggests Student Research on "Trade Barriers"

Secretary of Commerce Harry L. Hopkins has announced that a program aimed at promoting research by graduate students in American universities and colleges on "the social and economic ramifications of interstate and municipal trade barriers" has been launched by the Interdepartmental Committee on Interstate Trade Barriers. Letters have been mailed by Paul T. Truitt, assistant to Secretary Hopkins and chairman of the Interdepartmental Committee, to approximately 170 colleges and universities throughout the United States urging the adoption of trade-barrier research as part of the graduate school curricula.

"The program," says the Commerce Department statement, "would be coordinated with the cooperative business research work already underway between the Department of Commerce and schools of business of state universities." A three-part outline of suggested study was included in Mr. Truitt's letters: (1) Social and political origins of barrier laws; (2) operation and administration of trade-barrier enactments, including methods and degree of enforcement; (3) analysis of the social and economic consequences of particular barrier laws, including effects on employment, production, costs, and consumption.

Several categories of possible "trade barrier examples" were suggested, the first on the list being "motor vehicle regulations."

Secretary Hopkins hopes that the studies "will be started as soon as possible so that some data will be available at the end of 1940 and that practically all studies will be completed by the end of the 1940-41 school year."

Engel Tells Oil Men About RRs.

(*Continued from page 638*)

no watchmen, no signal system—just operate; and

"Two, that notwithstanding this, the percent of gross earnings paid in taxes is almost as large for the railroads as for the trucks engaged in commercial transportation. If to railroad taxes you add the cost of maintenance of the railroad facilities which the vehicles of railroad transportation use—that part of the rail transportation expense such as operation of signals, crossing guards, etc.—which items are supplied by the public to all other forms of transportation, and make some allowance for return on the investment in facilities, you can readily appreciate the very great handicap under which the railroads must now operate.

"There are of course a multitude of other points that can be argued on both sides of this question but it seems to me the two which I have mentioned are really the controlling items."

The situation of pipelines, he pointed out was different, because "the owners have always out of their own pocketbooks bought or leased their right-of-way and built, maintained and fully operated the facilities themselves. But may I say you do have some decided advantages—you don't have to get a certificate of convenience from a governmental agency before you build, nor go through the procedure we do to abandon a branch which has become useless because of diversion of traffic, nor do you have a commodities clause about which to worry. If I were to recite all the differences between regulation of railroads and regulation of other forms of transportation your afternoon session would end sometime tonight or tomorrow."

Mr. Engel called attention to the extensive purchases by the railways from the oil industry, in contrast to the declining patronage by the oil industry of railway service. The Santa Fe alone paid 10 million dollars in 1939 to the oil companies; moreover, it is itself interested through affiliates in oil properties. He then told of the branch lines which the railroad had built to serve oil-producing regions, but which no longer are patronized by that industry in the shipment of its products. Continuing, he said:

"The most spectacular oil development

in our territory undoubtedly was the Texas Panhandle field. This threw quite a perplexing problem into our laps, for regular transcontinental freight traffic was passing over a single-track main line through Amarillo. This was a comfortably busy piece of track but quite adequate until suddenly, almost overnight, in 1926 upward of 400 additional carloads of freight had to be handled daily on this line. The only way to provide for free movement of trains was to build a second track, branch lines, and make other improvements at a cost of considerably more than 7 million dollars in 1926 and 1927 alone. From a mere 5,500 carloads of freight handled at six stations in this oil field in 1925, we had a jump to 84,000 carloads in 1926 and nearly as many in 1927. But in 1939 we were down to 16,000 carloads notwithstanding the continuing importance of the field.

I. C. Permitted to Cut Export Grain Rates to Gulf

Finding "convincing" evidence that the Illinois Central "cannot compete at present rates with the water lines," the Interstate Commerce Commission, Division 3, has decided that proposed reduced carload rates on export grain from points in Illinois on the line of that road and the Elgin, Joliet & Eastern to New Orleans, La., and Gulfport, Miss., are justified. The suspended schedules involved in the proceeding (I. & S. Docket No. 4689) were originally published to become effective August 10, 1939; they proposed to cut present export rates ranging from 19 to 29 cents to 18 to 23 cents with the six-cent reductions predominating. Combination truck-barge from Illinois points to New Orleans, the decision says, range from 12.67 cents to 18.54 cents, the "most important competition" being that of the government-owned Inland Waterways Corporation.

Reviewing the evidence the commission found it "obvious" that I. C. grain traffic from Illinois to New Orleans "is rapidly diminishing and the traffic by barge is steadily increasing." Also, the decision refers to the I. C. contention "that it is something more than a mere gatherer of grain originating at country stations on its lines for delivery to barge lines at the river landings, and, therefore, cannot be expected to be content with a movement to East St. Louis, Ill., St. Louis, Mo., or Cairo, Ill., when that grain is destined for New Orleans, particularly in view of the fact that it has its own rails for the entire distance to that point.

Among those protesting the reductions were other railroads operating in Central territory; but "no protestant denies the extent of the competition—the only question with respect thereto is how far from the rivers the competition is felt." The record, however, afforded "no absolute answer" as to the distance beyond which "the barges, in conjunction with unregulated trucks, will not draw grain from rail lines;" although there was accord that the competition of the waterways will be felt for a distance as great as 75 miles, while one witness knew of Iowa corn being trucked 250 miles to barges.

In conclusion the commission found the record "persuasive" that the proposed rates would increase I. C. revenues; and it seemed "clear" also that they "would benefit the interior producers as well as those located on or adjacent to the river ports."

U. S. C. of C. Committee Makes Transport Recommendations

Proposals aimed at a "more systematic and orderly basis for highway improvement to meet modern conditions as revealed by federal and state highway surveys" have been formulated in a report prepared by the Transportation and Communication Committee of the Chamber of Commerce of the United States for consideration at the annual meeting which will be held in Washington, D. C., from April 29 to May 2. Recommendations were also made on marine and transport, but none were made on railway transport at this time, it was stated at the Chamber.

After reviewing highway policies the committee has made the following recommendations:

1. That the state highway departments should have supervisory power over the expenditure of all state-raised revenues expended on highways of general use, whether in state or local systems.

2. That the joint highway and traffic surveys recently in process in nearly all of the states be continued to provide the federal and state highway authorities at all times with the current information needed for proper highway planning.

3. That a system of free interregional highways of the most modern standards be included in the future highway program, such highways to receive an appropriate share of the total highway funds available.

4. That toll highways should not be constructed and that tolls should be limited to unusually expensive special highway structures.

5. That the cost of highway facilities for military purposes but also serving general peace time traffic be apportioned between the federal government and the state or local governments in proportion to benefits.

6. That adequate express highways, to and through the hearts of cities, and adequate bypass routes where needed to relieve traffic congestion be included in the highway program.

7. The state laws empower state highway departments to exercise broad authority in the acquisition, control and disposal of lands deemed necessary for proper highway development and control and that the costs thereof be made eligible for federal aid under the established federal-aid program.

In a special report on itinerant merchant truckers, who are often referred to as truck peddlers, the committee proposes that in states where their operations are harmful to the public interest legislation be passed to regulate them through a system of licensing, bonding and proof of financial responsibility.

On the subject of government subsidization of aviation the committee urged that "No federal funds should be expended on commercial airports except under plans approved by the Civil Aeronautics Authority; federal aviation funds should be limited to airports serving communities for which the Authority has granted or is prepared to grant certificates for airline service and should be confined to establishment and operation of air navigation and traffic control facilities or other work meeting the test of special national interest in particular cases; and local interest should be required, as a prerequisite to such federal participation, to furnish and undertake to maintain approved landing areas and necessary buildings."

Club Meetings

The Pacific Railway Club will hold its next meeting on April 12 at the Hotel Hayward, Los Angeles, Cal. Dr. F. C. Lindvall, assistant professor of electric engineering at California Institute of Technology, will present a non-technical, address covering two subjects: Air Circulating Fans in Refrigerator Cars and Light Weight Passenger Cars Embodying "Above Gravity" Suspension and Skin Stressed Body Construction. The address will be illustrated with Lantern Slides.

The Canadian Railway Club will hold its next meeting on April 8, at the Windsor hotel, Montreal. Rear Admiral H. E. Sheridan, R. N., will present a paper entitled, "The Royal Navy at Peace and War". An added feature will consist of a film shown through the courtesy of the Canadian Pacific entitled, "An Express Looks at the World".

The Car Foremen's Association of Omaha, Nebr., Council Bluffs and South Omaha Interchange, will hold its next meeting on April 11, at 1:30 p.m., at the Burlington station, Omaha.

The Southern & Southwestern Railway Club will hold its next meeting on May 16, at 10:00 a. m., at the Ansley hotel, Atlanta. Fred L. Huggins, general superintendent, railroad engineering division, Air Reduction Sales Co., New York, will present a paper entitled, "Oxyacetylene Machine Cutting in Railroad Shops".

The Central Railway Club, Buffalo, N. Y., will have a "Coal Night" on April 18, 8 p. m. at the Statler hotel. There will be a short talk on coal geology, followed by a picture illustrating combustion. This will be followed by a colored "talkie" on all phases of coal production—the presentation being that of the Pittsburgh Coal Company.

The Eastern Car Foreman's Association will hold its next meeting on Friday April 12, at 8 p. m., in the Engineers' Society Building, 29 West 39th Street, New York. George W. Wall, electrical foreman of the Delaware, Lackawanna & Western, will present a paper concerning air conditioning, after which a discussion on questions pertaining to air conditioning will be held.

At the next meeting of the New York Railroad Club to be held on Thursday, April 18th at 7.45 P. M. in the Engineering Societies Building, 33 West 39th Street, New York, there will be illustrated talks on the latest developments in the art of stopping high speed trains by C. D. Stewart, chief engineer, Westinghouse Air Brake Company and M. N. Trainer, president, Brake Shoe & Castings division of the American Brake Shoe & Foundry Company.

Equipment and Supplies

Equipment Orders in First Quarter

Locomotives show increase over orders for the same quarter of 1939

During the month of March orders were reported for a total of 40 locomotives and 1,076 freight cars, but no additions were made to passenger equipment. These orders compare with 63 locomotives, 1,000 freight cars and 60 passenger-train cars ordered in March, 1939. All orders reported in March, 1940, were placed with American manufacturers and railroad shops for service in the United States; no Canadian or export orders being listed. This brings total domestic purchases for the first quarter of the present year to a total of 86 locomotives, 2,457 freight cars and 20 passenger-train cars, as compared with a total of 74 locomotives, 3,007 freight cars and 107 passenger-train cars ordered during the first quarter of 1939.

American manufacturers also secured during the first quarter of this year orders for 10 locomotives for export. There are inquiries or contemplated purchases pending for about 30 steam locomotives and five locomotive tenders. In addition, there are a number of programs for the purchase of Diesel-electric locomotives and streamlined trains. Inquiries outstanding include also about 2,700 freight cars and 40 passenger-train cars—all for domestic service in the United States. Inquiries are reported for 28 locomotives for export to foreign countries, and American manufacturers are quoting on other export locomotives.

FREIGHT CARS

THE CHICAGO, BURLINGTON & QUINCY has placed an order with company shops for the construction of 100 70-ton covered hopper cars, 25 mill-type gondola cars and 25 auto-parts box cars. An additional 25 of the latter will be built if needed. Inquiry for this equipment was reported in the *Railway Age* of March 2 and 16. Of the 100 flat cars authorized last year, 61 have been constructed by company shops.

THE NEW YORK CENTRAL has placed orders for 1,500 all-steel hopper cars of 55-tons capacity to be built by the Despatch Shops, Inc.

LOCOMOTIVES

THE NEW YORK CENTRAL has placed orders for 50 heavy locomotives of the L-3 Mohawk type, 35 to be built by the American Locomotive Co., and 15 by Lima Locomotive Works.

Domestic Equipment Orders Reported in Issues of the Railway Age in March 1940 (Excluding March 2)

LOCOMOTIVES

Date	*Name of Company*	*No.*	*Type*	*Builder*
Mar. 9	Atchison, Topeka & Santa Fe ..	4	Diesel-electric	Electro-Motive Corp.
Mar. 9	Lehigh Valley	3	Diesel-electric	Electro-Motive Corp.
		1	Diesel-electric	American Locomotive Co.
Mar. 9	Chicago, Milwaukee, St. Paul & Pacific	12	Diesel-electric	Electro-Motive Corp.
		3	Diesel-electric	American Locomotive Co.
		2	Diesel-electric	Baldwin Locomotive Works
		1	Diesel-electric	General Electric Co.
Mar. 16	Delaware, Lackawanna & Western	11	Diesel-electric	Electro-Motive Corp.
		3	Diesel-electric	American Locomotive Co.

FREIGHT CARS

Mar. 9	Tennessee Copper Co.	8	Air-dump	Pressed Steel
Mar. 16	Illinois Central	62	Covered Hopper	General American
Mar. 23	Fruit Growers Express	6	Flat	Company Shops
Mar. 30	New York Central	500	Box	Pullman-Standard
		500	Box	Pressed Steel

Supply Trade

U. S. Steel Issues Annual Report in New Form

The United States Steel Corporation has issued its 38th annual report to stockholders *and employees*—in a new and simplified form, which gives a comprehensive account of 1939 operations in easily-understood language.

The report includes a table which gives the figures on "How the Corporation Has Earned Its Living Since 1902", and the headings on this table are not given in accounting phraseology, but in such easily-comprehended terms as follows: "Sales of Goods and Services; Goods and Services Purchased from Others; Depletion, Depreciation and Amortization; Taxes; Interest Paid; Leaving for Wages for the Services of Men and Facilities; Wages and Salaries for Men; Wages for the Use of Facilities; Preferred Dividends; Common Dividends; Balance."

Descriptive fact-and-figure information is given of the corporation's properties and facilities, its products, its employees (number, wages, pensions, etc.), and its research —as well as the balance sheet and income account.

Gross sales of the corporation in 1939 were 801 millions (as compared with 561 millions in 1938). Its transportation lines brought in revenues of 78 millions (53 millions in 1938). With revenues from miscellaneous operations added, gross revenues reached a total of 904 millions (633 millions in 1938). Net operating income was 60 millions (in 1938 there was a deficit of slightly over 2 millions). Net income after interest and taxes was 41 millions (a loss of slightly less than 8 millions in 1938). After preferred dividends (none was paid on common in either 1938 or 1939), 16 millions remained for transfer to surplus (against a deficit of 33 millions after preferred dividends in 1938).

In physical volume of production, the corporation showed the following percentage increases in 1939 over 1938: iron ore, 98; manganese and zinc ores, 9; coal, 56; coke, 73; other raw materials, 64; pig iron, spiegel and ferro, 79; steel ingots, 67; rolled and finished steel for sale, 66; cement, 25.

The American Brake Shoe and Foundry Company, New York, on April 1, purchased the **Great Lakes Forge Company,** Chicago. The American Forge division of the Brake Shoe Company, which will operate the Great Lakes Forge Company, specializes in heavy upset forgings. **G. C. Hodgson,** president of the Great Lakes Forge Company, has retired from active business, and the officers of the Great Lakes Forge Company are now as follows: **W. E. Crocombe,** president; **H. Mulford,** vice-president in charge of sales; **A. R. Nettenstrom,** vice-president in charge of manufacturing; **A. L. Moses,** vice-president; **F. L. Moore,** general sales manager.

The General Electric Company has made three appointments in its Transportation department at Erie, Pa.; **E. W. Brandenstein** has been appointed head of the Railroad Electrification section, **E. E. Kearns,** head of the Urban Equipment section, and **R. D. Krape,** head of the

E. W. Brandenstein

Diesel-electric Locomotive section. Mr. Brandenstein, following his graduation from Union College in 1923, entered the testing department of the General Electric Company in that year and within a few months went to Erie. In the following year he returned to Schenectady, N. Y., and in 1927 became a commercial engineer in the general office of the Transportation

department. Mr. Brandenstein went with that department when it was moved to Erie.

E. E. Kearns was graduated from Oregon State University in 1926, and in the same year started work with the General

E. E. Kearns

Electric Company at Schenectady as a student in drafting. In 1927, he went to Erie, and since 1930, has been a commercial engineer in the general office of the Transportation department at Erie.

R. D. Krape began work with the General Electric in 1911, following his graduation from Pennsylvania State College. In

R. D. Krape

1913, he joined the railway equipment engineering department in Schenectady, and since 1926, has been a commercial engineer in the general office of the Transportation department at Erie.

J. D. Fletcher, export sales manager, and **T. R. Farley,** assistant to the president of the **Caterpillar Tractor Company,** Peoria, Ill., have been elected vice-presidents. Mr. Fletcher, who will continue as head of the export department was born in Pasadena, Cal., and was graduated from the University of California in 1907. In 1910, after a year at the institution in connection with university extension work, he engaged in the shipping business. From that occupation he was drafted during the war into the Marine Transportation Division of the Food Administration in Washington. He was also associated with the Commission for Relief in Belgium, and the American Relief Administration, both in Washington and New York. After the Armistice, he helped form an export company in New York, and for five years participated in its growth. On June 1, 1929, he entered the employ of the Caterpillar Tractor Company, and the following year was made export sales manager.

Mr. Farley was born in Ipswich, Mass., and was educated in eastern schools. Upon graduation, he went to work for the New England Telephone and Telegraph Company, and later for the Pierce-Arrow Motor Car Company. In 1916 he enlisted in the United States Army, and saw active service during the World War. He resigned his commission as captain in May, 1919. In June of that year, he went to work for the Holt Manufacturing Company, one of the predecessors of the Caterpillar Tractor Company. When the present company was formed, he continued as an employee, and rose steadily to his position as assistant to the president.

Robert G. Sonquist, who has been associated with the **American Steel Foundries** for the past 21 years, has resigned and accepted a position in the New York office of the **Standard Railway Equipment Company.**

W. C. Dabney, president of the **Jones-Dabney Company,** Louisville, Ky., has been elected a vice-president of **Devoe & Raynolds Company, Inc.,** with supervision of Devoe's Railroad and Marine Paint divisions. Mr. Dabney will have his headquarters, as formerly, at Louisville.

George H. Houston, formerly president of the Baldwin Locomotive Works, has joined with **Hendrik R. Jolles** to form the firm of **Houston & Jolles,** industrial and financial consultants, with office at 52 Wall street, New York. **Edward W. Higgins,** also formerly in Baldwin service, is associated with the new firm.

Yale D. Hills, supervisor of distributors of the **Timken Roller Bearing Company,** Canton, Ohio, has been appointed assistant general manager of the service-sales division. **J. F. Cornell,** manager of the Minneapolis, Minn., branch of this division, has been appointed special representative, with headquarters at Canton, and has been succeeded by **J. P. Roberts,** a salesman at Pittsburgh.

OBITUARY

Joseph W. King, traffic manager of the Phelps Dodge Corporation, New York, died of pneumonia on March 25, at his home in Paterson, N. J., at the age of 49 years.

Robert R. Dunn, vice-president of the General American Transportation Corporation in charge of the refrigerator car division, died on March 29 at Miami Beach, Fla., of pneumonia. Mr. Dunn was born on July 18, 1889, and had been in the employ of General American for 21 years. He began as a timekeeper, and after holding various positions was made plant auditor. Later he was promoted to vice-president of the Quaker City Tank Line Company, a subsidiary, with headquarters at St. Louis, Mo. In 1931, after several years in this position, he was appointed vice-president of General American Transportation System, Inc., also a subsidiary,

Robert R. Dunn

which position he held until 1935 when he was elected vice-president of the corporation.

Construction

CHICAGO & NORTH WESTERN.—The time within which this company may complete the construction of an extension in Marquette County, Mich., has been extended from April 1, 1940, to August 14, 1940, according to a decision of Division 4 of the Interstate Commerce Commission.

LEHIGH VALLEY.—The New York Public Service Commission has approved a low bid of $92,260, submitted by the Bero Engineering & Construction Corporation, North Tonawanda, N. Y., for the elimination of the Ridge Road crossing of this road in the town of West Seneca, N. Y., and has directed the Public Works Department to award the contract and begin work as soon as practicable.

MISSOURI PACIFIC.—Work has been resumed on the relocation of 1.2 miles of single track near Scott, Mo. The line change involves 24,600 cu. yd. of earth excavation, 26,100 cu. yd. of rock excavation, 51,900 cu. yd. of channel change work for Gray's Creek, the construction of two 8 ft. by 8 ft. concrete box culverts and the construction of two bridges. One bridge will be a four-panel concrete trestle 72 ft. long and the other, 174 ft. long, will consist of one 55-ft. deck plate girder span with seven panels of concrete trestle approach, four on the east end and three on the west end. Two three deg. curves will be eliminated and one four deg. curve will be reduced to a two deg. and 12 min. curve permitting an increase in the speed limit at this location from 50 to 75 m. p. h. The grading work was contracted to Winston Brothers, Minneapolis, Minn.

Financial

ALLEGHANY CORPORATION.—*Annual Report.*—The eleventh annual report of the Alleghany Corporation shows total income for 1939 amounting to $3,678,026. Of this sum $3,549,983 represents dividends received on pledged securities, principally the common stock of the C. & O. In addition, $894,600 was received as a cash liquidation dividend from the Chesapeake Corporation. Interest on collateral trust bonds, amortization of bond discount, expense and other deductions amounted to $4,570,059, leaving a net loss for the year ended December 31, 1939, of $892,033. There were reductions in the total funded debt of the Corporation from $76,450,000 on December 31, 1938, to $75,482,000 outstanding December 31, 1939.

ARKANSAS VALLEY.—*Purchase.*—The Arkansas Valley Railway has been authorized by Division 4 of the Interstate Commerce Commission to purchase the properties of the Arkansas Valley Interurban, consisting of a line extending from Wichita, Kans., to Hutchinson, with a branch line extending from Van Arsdale, Kan., to Newton, a total distance of 60 miles.

Stock.—At the same time this company has been granted authority to issue 1,093 shares of common stock with a par value of $100 a share to finance the purchase of the above-mentioned property.

CHICAGO UNION STATION.—*Securities.*—This company has been authorized by Division 4 of the Interstate Commerce Commission to issue $16,000,000 of first mortgage 3⅛ per cent bonds, maturing July 1, 1963, and $600,000 of 1½ per cent guaranteed notes of 1940, maturing in 10 semi-annual payments, the bonds to be sold at not less than 99.43 per cent, and the guaranteed notes at par, in both cases with accrued interest, and the proceeds used in connection with the redemption of $16,000,000 of its four per cent first mortgage bonds.

Guarantee.—At the same time Division 4 authorized the Chicago, Burlington & Quincy; the Chicago, Milwaukee, St. Paul & Pacific; the Pittsburgh, Cincinnati, Chicago & St. Louis; and the Pennsylvania to assume liability as guarantors, by endorsement, for the payment of the principal and interest of the bonds and notes. As noted in last week's issue, these bonds were originally offered for competitive bidding, but only one bid, that of Halsey, Stuart & Co., of Chicago, was received and was considered too low. As a result the issue was sold privately to a syndicate headed by Kuhn, Loeb & Co. of New York. After the commission had held a hearing to investigate the paucity of bids and received no new information regarding it, the decision was made to approve the sale to Kuhn, Loeb & Co., at 99.43, making the average annual cost to the company approximately 3.16 per cent.

CHICAGO & WESTERN INDIANA.—*Annual Report.*—The 1939 annual report of this road shows net income, after interest and other charges, of $456,651, an increase of $54,531 as compared with net income in 1938. Selected items from the income statement follow:

	1939	Increase or Decrease Compared with 1938
RAILWAY OPERATING REVENUES	$159,005	+$20,969
Maintenance of way	17,026	+2,014
Maintenance of equipment	394	+27
Transportation	109,594	+6,807
TOTAL OPERATING EXPENSES	177,808	+5,062
Operating ratio	111.83	−13.32
NET LOSS FROM OPERATIONS	18,802	−15,907
Railway tax accruals	847,051	+452,345
Net rents	2,247,408	+450,953
NET RAILWAY OPERATING INCOME	1,381,554	+14,514
Other income	2,098,270	+7,866
TOTAL INCOME	3,479,825	+22,381
Interest on funded debt	2,949,531	−12,154
TOTAL FIXED CHARGES	2,962,565	−31,079
NET INCOME	$456,651	+$54,531

GULF, MOBILE & NORTHERN.—*Annual Report.*—The annual report of this road for 1939 shows net income, after interest and other charges, of $427,388, an increase of $311,799 as compared with net income in 1938. Selected items from the income account follow:

	1939	Increase or Decrease Compared with 1938
Average Mileage Operated	823.93	−61.89
RAILWAY OPERATING REVENUES	$6,924,300	+$426,729
Maintenance of way	917,699	+46,949
Maintenance of equipment	1,020,713	+62,120
Transportation	1,825,489	−25,849
TOTAL OPERATING EXPENSES	4,687,364	+116,182
Operating ratio	67.69	−2.66
NET REVENUE FROM OPERATIONS	2,236,936	+310,547
Railway tax accruals	637,200	+57,000
Railway operating income	1,599,736	+253,547
Equipment rents—Net	295,232	+18,754
Joint facility rents—Net	173,652	−65,647
NET RAILWAY OPERATING INCOME	1,130,851	+300,440
Other income	49,753	+591
TOTAL INCOME	1,180,604	+301,032
Rent for leased roads and equipment*	186,950	.....
Interest on funded debt	561,835	−6,240
TOTAL DEDUCTIONS FROM GROSS INCOME	753,216	−10,767
NET INCOME	$427,388	+$311,799

* Excludes inter-company transactions with N. O. G. N. Ry. Co.

ELGIN, JOLIET & EASTERN.—*Bonds.*—This company has been authorized by Division 4 of the Interstate Commerce Commission to procure the authentication and delivery of $20,000,000 of first mortgage 3¼ per cent bonds, series A, maturing March 1, 1970, $19,000,000 thereof to be sold at 99½ and accrued interest, and the remaining $1,000,000 to be pledged and repledged to and including June 30, 1942, as collateral security for any short-term note or notes; the proceeds of the $19,000,000 of bonds to be used in connection with the redemption of $10,000,000 of its five per cent first mortgage gold bonds maturing May 1, 1941, and $9,000,000 of Chicago, Lake Shore & Eastern first mortgage gold bonds, maturing June 1, 1969.

MARCELLUS & OTISCO.—*Abandonment.*—This company has asked the Interstate Commerce Commission for authority to abandon its line extending from Marcellus, N. Y., to Otisco Lake, seven miles.

MISSOURI PACIFIC.—*Reorganization.*—Edmund Wright, Leon D. Sterling, and Peter E. Kassler have been authorized by Division 4 of the Interstate Commerce Commission to serve as a protective committee for holders of series A, six per cent; series B, five per cent; and series C, five per cent first mortgage bonds of the International-Great Northern pursuant to section 77(p) of the Bankruptcy Act, and to solicit authorizations to represent the holders of these bonds, without the deposit thereof, in accordance with the rules of the committee and the provisions of such authorizations.

MOBILE & OHIO.—*Annual Report.*—The 1939 annual report of this company shows net deficit, after interest and other charges, of $440,924, a decrease of $117,421 as compared with net deficit in 1938. Selected items from the income account follow:

	1939*	Increase or Decrease Compared with 1938*
RAILWAY OPERATING REVENUES	$11,736,534	+$288,662
Maintenance of way	1,806,356	+371,030
Maintenance of equipment	2,218,952	+157,979
Transportation	4,094,890	−222,837
TOTAL OPERATING EXPENSES	9,175,380	+320,639
Operating ratio	84.48	+0.65
NET REVENUE FROM OPERATIONS	2,561,154	−31,976
Railway tax accruals	739,918	−1,659
Hire of Equipment	427,398	−88,521
Joint facility rents	369,831	−1,616
NET RAILWAY OPERATING INCOME	1,024,005	+59,819
Other income	61,436	+1,519
TOTAL INCOME	1,085,442	+61,338
Rent for leased roads	1,568	.....
TOTAL FIXED CHARGES	1,517,584	−54,925
NET DEFICIT	$440,924	−$117,421

* Combined Corporate and Receivers' Accounts.

NEW YORK CENTRAL.—*Reorganization of Peoria & Eastern.*—A plan of adjustment under the Chandler Act for this company, a leased line of the New York Central System, has been approved by the Interstate Commerce Commission. Under the plan, as approved by the commission, provision is made for the maturity on April 1 of the road's $8,586,000 of outstanding consolidated mortgage 50-year, four per cent bonds. The plan provides for the payment of $450 in cash on account of each $1,000 bond and the extension of the maturity of the balance for 20 years to April 1, 1960, at an unchanged interest rate of four per cent. Further details of the plan were given in the *Railway Age* for February 3, 1940, page 262.

Operating Agreement.—At the same time Division 4 authorized the Cleveland, Cincinnati, Chicago & St. Louis and the New

York Central to operate the properties of the Peoria & Eastern, under a modified operating agreement. Authority was also granted to these companies to assume liability for the interest on $4,722,300, the reduced principal amount, of extended first consolidated mortgage 50-year four per cent bonds of the Peoria & Eastern, including extended bonds of the denominations of $50, $500, and $1,000 issuable for the purposes of exchange, in connection with the P. & E.'s adjustment plan, described above.

NEW YORK, CHICAGO & ST. LOUIS.—*Annual Report.*—The 1939 annual report of this road shows net income, after interest and other charges, of $3,371,202, an increase of $4,430,705 over the 1938 figure. Selected items from the income account follow:

	1939	Increase or Decrease Compared With 1938
RAILWAY OPERATING REVENUES	$43,175,402	+$6,794,170
Maintenance of way	4,318,095	+635,820
Maintenance of equipment*	6,554,383	+834,341
Transportation	14,832,575	+1,118,861
TOTAL OPERATING EXPENSES	28,559,574	+2,533,716
Operating ratio	66.15	–5.39
NET REVENUE FROM OPERATIONS	14,615,827	+4,260,454
Railway tax accruals	2,742,019	+478,902
Railway operating income	11,873,808	+3,781,551
Equipment rents—Net	2,981,680	–398,956
Joint facility rents—Net	454,848	–3,448
NET RAILWAY OPERATING INCOME	8,437,279	+3,379,147
Other income	591,132	+100,319
TOTAL INCOME	10,548,397	+4,342,739
Rent for leased roads and equipment	3,531	.....
Interest on funded debt	7,088,869	–107,992
NET INCOME	$3,371,202	+$4,430,705

* Includes depreciation.

PENNSYLVANIA.—*Operation.*—This company has been authorized by Division 4 of the Interstate Commerce Commission to operate, under trackage rights, over the Municipal Bridge, and lines of the Terminal Railroad Association of St. Louis, between East St. Louis, Ill., and St. Louis, Mo., 7.9 miles. The company had taken the position that the commission's authorization was unnecessary because only an arrangement in the nature of a relocation is involved. Division 4 thought this contention was without merit and cited the case of where it had required the Missouri Pacific to get authorization to use the Municipal Bridge partly in lieu of and in addition to the use of a car ferry across the Mississippi between East St. Louis, Ill., and St. Louis, Mo. Commissioner Porter noted a concurring opinion in which he took the position that the reasoning in the majority decision was incomplete.

READING.—*Control of the Chestnut Hill.*—This company has been authorized by Division 4 of the Interstate Commerce Commission to acquire control of the Chestnut Hill by purchase of its capital stock.

READING—*Abandonment by the Gettysburg & Harrisburg.*—The Gettysburg & Harrisburg and the Reading, respectively, have been authorized by Division 4 of the Interstate Commerce Commission to abandon a part of the Hunters Run branch and the operation thereof extending from Hunters Run, Pa., to Pine Grove Furnace, 5.5 miles.

NEW YORK, NEW HAVEN & HARTFORD.—*Annual Report.*—The 1939 annual report of this road shows net deficit, after interest and other charges, of $2,914,114, a decrease of $8,709,078 as compared with net deficit in 1938. Selected items from the income statement follow:

	1939	Increase or Decrease Compared With 1938
RAILWAY OPERATING REVENUES	$83,418,475	+$10,338,334
Maintenance of way	11,021,934	–145,883
Maintenance of equipment	13,737,395	+1,175,828
Transportation	31,010,775	+623,583
TOTAL OPERATING EXPENSES	61,459,159	+1,661,039
Operating ratio	73.68	–8.15
NET REVENUE FROM OPERATIONS	21,959,316	+8,677,295
Railway tax accruals	6,192,386	+102,117
Railway operating income	15,766,929	+8,575,177
Net rents—Dr.	7,304,007	+629,302
NET RAILWAY OPERATING INCOME	8,462,922	+7,945,875
Other income	2,725,525	+309,518
TOTAL INCOME	11,188,447	+8,255,393
Rent for leased roads	721,749	–338,137
Interest on funded debt	11,145,184	–87,274
TOTAL FIXED CHARGES	13,456,003	–402,677
NET DEFICIT	$2,914,114	*–$8,709,078

* 1938 included approximately $2,533,225 representing Hurricane-Flood estimated revenue loss and rehabilitation expense.

SOUTHERN PACIFIC.—*Stock.*—This company has been authorized to issue 3,772,763.0564 shares of common capital stock without nominal or par value in exchange, on a share for share basis, for an equal number of shares of outstanding common stock with a par value of $100 a share. The commission's decision states that this action was made necessary because of a Kentucky law which requires that the company's stock cannot be issued for a consideration less than par value and also because of the fact that under present conditions "it is improbable that the stock can be disposed of in the near future for a consideration equal to its par value." The change from stock with par value to stock without nominal or par value is essential if the stock is to be used in financing when opportunity therefor arises, it is pointed out.

WABASH.—*Equipment Trust Certificates and R. F. C. Financing.*—This company has asked the Interstate Commerce Commission to approve a plan whereby it would issue and sell to the Reconstruction Finance Corporation $9,150,000 of its 2½ per cent equipment trust certificates, maturing in 15 consecutive semiannual equal installments beginning October 1, 1940, and thereafter each April 1 and October 1, to and including October 1, 1947. This application is an amendment of an application which was approved by the commission and reviewed in the *Railway Age* of December 30, 1939, page 1015, in which this company was authorized to sell to the R. F. C. $9,300,000 of 2½ per cent equipment trust certificates. The new application would reduce the loan by $150,000.

TORONTO, HAMILTON & BUFFALO.—*Annual Report.*—The 1939 annual report of this road shows net income, after interest and other charges, of $314,208, an increase of $121,898 compared with net income in 1938. Selected items from the income account follow:

	1939	Increase or Decrease Compared With 1938
RAILWAY OPERATING REVENUES	$1,838,909	+$252,375
TOTAL OPERATING EXPENSES	1,314,716	+102,109
Operating ratio	71.49	–4.94
NET REVENUE FROM OPERATIONS	524,193	+150,266
Railway tax accruals	99,802	+19,773
Railway operating income	424,390	+130,492
Equipment rents—Net Dr.	8,586	+125
Joint facility rents—Net Cr.	62,991	–3,181
NET RAILWAY OPERATING INCOME	478,794	+127,184
Other income	83,703	+25,885
GROSS INCOME	562,498	+153,070
Interest on funded debt	205,249	–7,246
TOTAL DEDUCTIONS FROM GROSS INCOME	248,289	+31,172
NET INCOME	$314,208	+$121,898

YOSEMITE VALLEY. — *Reorganization Plan.*—This company has submitted to the Interstate Commerce Commission for its approval of a plan of reorganization under section 77 of the Bankruptcy Act in which the holder of each $1,000 bond would receive in exchange a new $500 bond. Each bond would have attached to it semi-annual interest coupons representing the obligation of the company to pay the interest on the new bonds at the rate of four per cent from the date of issue to maturity. The company would also issue stock representing the difference between $1,159,000 and the aggregate value of the total assets of the company on the basis of 10 shares for each $1,000 valuation of such assets. The plan further provides that this stock will be issued to the holders of the new bonds in proportion to their respective interests.

To carry out the plan the company would issue $1,159,000 of new first mortgage four per cent bonds to mature in 25 years. It would also amend its articles of incorporation so that it would have a capitalization of 40,000 shares of no par, common capital stock. As of March 14, 1940, the company had outstanding $2,318,000 of its first mortgage five per cent sinking fund 30-year gold bonds, accrued interest of $289,750, and 1,761 shares of common stock.

Dividends Declared

Norfolk & Western.—Preferred, $1.00, quarterly, payable May 18 to holders of record April 30.

Reading.—25¢, quarterly, payable May 9 to holders of record April 11.

Average Prices of Stocks and Bonds

	Apr. 2	Last week	Last year
Average price of 20 representative railway stocks..	31.55	30.93	27.49
Average price of 20 representative railway bonds..	59.91	58.93	59.12

Railway Officers

EXECUTIVE

A. C. Shields has been appointed vice-president and general manager of the Pittsburgh & Shawmut, with headquarters at Kittanning, Pa.

R. M. Paisley, traffic manager in charge of rates and divisions of the Pittsburgh & West Virginia, with headquarters at Pittsburgh, Pa., has been elected vice-president in charge of traffic.

Gordon L. Whipple, general superintendent of transportation of the Union Pacific, with headquarters at Omaha, Neb., has been promoted to assistant vice-president in charge of operations, a newly created position, with the same headquarters.

Arthur H. Cavanaugh, general manager of the Temiskaming & Northern Ontario, has been appointed chairman of the board, with headquarters as before at North Bay, Ont., succeeding **Colonel Malcolm Lang,** who has resigned. Mr. Cavanaugh will also retain his former position as general manager.

J. Edgar Coulter, vice-president and general manager of the Canadian Pacific Express Co., has been appointed president, with headquarters as before at Toronto, Ont., succeeding **Thomas E. McDonnell,** deceased. Mr. Coulter, also elected a director, will bear the title of president and general manager. He was born on March

J. Edgar Coulter

18, 1890, at Toronto, and attended public and high schools of that city. Mr. Coulter entered railway service on February 16, 1903, as a clerk in the vice-president's office of the Canadian Pacific Express at Toronto and remained in that position until November 5, 1905, when he was transferred in the same capacity to the president's office. On May 1, 1911, he was appointed chief clerk to the president, and on July 1, 1923, became assistant to the vice-president. Mr. Coulter became assistant to the president and general manager on July 1, 1928, relinquishing this position on January 1, 1932, to become general superintendent of the Eastern Lines, six months later becoming general superintendent of all lines. On February 1, 1937, he became general manager, being promoted to vice president and general manager on January 1, 1940.

Chester T. Dike, who relinquished his duties effective April 1, as chief engineer of the Chicago & North Western, but who continues as vice-president, with headquarters at Chicago, as announced in the *Railway Age* of March 30, was born at Woodstock, Ill., on August 13, 1871 and graduated from Cornell College in 1893. Subsequently he completed a post-graduate course in civil engineering. Mr. Dike entered railroad service in 1890 as a chain-

Chester T. Dike

man on the Northern Pacific. His continuous railroad service began in 1896 when he became chief engineer of the Mason City & Clear Lake at Mason City, Iowa. In 1898 he was appointed chief engineer of the Iowa, Minnesota & North Western (now part of the C. & N. W.), and a year later he was appointed resident engineer of the North Western in charge of the location and construction of the I., M. & N. During 1901 and 1902 he served as resident engineer in charge of location and construction of the Peoria & North Western and the Verdigre extension of the Chicago & North Western, while from 1903 to 1907 he was resident engineer and division engineer in charge of the location and construction of various branch lines of the latter road. He was then appointed superintendent of the Pierre, Rapid City & North Western (now part of the C. & N. W.), and from 1909 to 1911 he served as engineer and superintendent of construction of the Belle Fourche Valley, the James River Valley and other new line projects of the North Western. In the latter year he was promoted to general superintendent of the Minnesota and Dakota divisions, with headquarters at Huron, S. D., and during federal control of the railroads he was successively assistant general superintendent at Boone, Iowa, and assistant general manager at Omaha, Neb. Upon the termination of federal control in 1920, Mr. Dike was appointed engineer of maintenance, and on November 28, 1930, he was promoted to chief engineer. In the latter part of 1934, Mr. Dike was elected also vice-president of the North Western and of the Chicago, St. Paul, Minneapolis & Omaha.

FINANCIAL, LEGAL AND ACCOUNTING

J. G. Kisler, assistant secretary and auditor of the Great Western Railway, with headquarters at Denver, Colo., has been elected treasurer, succeeding **M. D. Thatcher,** who has resigned, and **H. R. Corsberg,** has been appointed auditor and assistant treasurer.

Karl M. Sisterhenm, assistant treasurer of the Central of Georgia, has been appointed treasurer, with headquarters as before at Savannah, Ga., succeeding **Charles F. Groves,** deceased. **Walter H. Saffold** has been appointed assistant treasurer, succeeding Mr. Sisterhenm.

OPERATING

C. A. Taylor, superintendent of telegraph and signals of the Chesapeake & Ohio, with headquarters at Richmond, Va., has been appointed assistant general superintendent, with headquarters at Huntington, W. Va., succeeding **F. D. Beale,** promoted.

Perry J. Lynch, superintendent of car service of the Northwestern district of the Union Pacific, with headquarters at Portlang, Ore., has been promoted to general superintendent of transportation, with headquarters at Omaha, Neb., succeeding **G. L. Whipple,** whose appointment as assistant vice-president in charge of operations is announced elsewhere in these columns.

Carl J. Millikan, trainmaster on the Pere Marquette at Saginaw, Mich., has been transferred to Grand Rapids, Mich., succeeding **W. W. Dyer,** who has retired and **E. E. Amberg,** general yardmaster at Toledo, Ohio has been promoted to trainmaster at Saginaw replacing Mr. Millikan.

C. H. Tabor, assistant general superintendent of the Western general division of the Norfolk & Western, has been appointed general superintendent, with headquarters as before at Bluefield, W. Va., succeeding the late **W. O. Tracy.** A photograph and a biographical sketch of Mr. Tabor appeared in the *Railway Age* of June 17, 1939, on page 1056.

Allen L. Kline, whose appointment as general manager of the New York, Susquehanna & Western, with headquarters at New York, was announced in the *Railway Age* of March 2, was born on January 1, 1880, and entered railroad service on February 2, 1900, with the Erie, as a yard clerk on the Mahoning division. In October of 1906, he was appointed yardmaster, which position he held until September, 1914, when he became assistant yardmaster. In June, 1917, Mr. Kline became extra yardmaster, and in September, 1917, secretary to Commission on Car Service. He was appointed inspector of transportation in January, 1918, and trainmaster, Meadville division, with headquarters at Meadville, Pa., in June, 1918. In March, 1920, Mr. Kline became superintendent of the Meadville division, remaining at Meadville until he was transferred to the Buffalo

division in February, 1927. He became superintendent of the New York division in October, 1928, which position he held until his recent appointment as general manager of the New York, Susquehanna & Western.

William J. P. Flannigan, assistant superintendent of safety of the Northern Pacific, has been promoted to superintendent of safety, with headquarters as before at St. Paul, Minn., succeeding **Fred M. Metcalfe,** who retired on April 1.

Mr. Flannigan was born at Jamestown, N. D., on February 22, 1894. He entered railway service in June, 1913, in the track department of the Northern Pacific and transferred to the engineering department the following year. In 1916 he became a brakeman on the Dakota division, and in 1923 he was advanced to a conductor. In 1937, he was appointed traveling safety agent, and a short time later he was promoted to assistant superintendent of safety. Mr. Flannigan is a former North Dakota highway commissioner and member of the North Dakota legislative assembly.

Mr. Metcalfe was born in England on March 8, 1870, and attended St. Johns College in Canada. In 1891, he entered railway service as traveling secretary of the president of the Chicago, St. Paul & Kansas City (now the Chicago Great Western) and a year later went with the Great Northern Construction Company. In 1893, he went with the Northern Pacific as a stenographer and clerk, and five years later he was promoted to assistant chief clerk in the general superintendent's office at St. Paul. In July, 1900, he was appointed chief clerk to the superintendent at Duluth, Minn., and in 1909, he was promoted to trainmaster. Mr. Metcalfe was appointed chief clerk to the general manager at St. Paul in 1910, and in 1915, he was appointed representative of the vice-president. In 1921, he was promoted to superintendent of safety, which position he held until his retirement. For years Mr. Metcalfe has been active in safety matters; he was one of the men who helped originate the Safety Section of the Association of American Railroads and he is a past chairman of the Steam Railroad Section of the National Safety Council. Under his leadership, employee casualties on the Northern Pacific, which now ranks third among the major railroads, have decreased from 35 to 3 per million man-hours-worked.

TRAFFIC

Henry J. Reis has been appointed assistant general freight agent of the Pittsburgh & West Virginia, with headquarters at Pittsburgh, Pa.

E. L. Repass, general passenger agent of the Norfolk & Western, has been promoted to passenger traffic manager, with headquarters as before at Roanoke, Va., succeeding **John L. Bladon,** who died February 15. **J. V. Fagan,** traveling passenger agent, has been appointed general eastern passenger agent, with headquarters as before at New York, succeeding **C. B. Perkins.** Mr. Perkins succeeds Mr. Repass as general passenger agent, at Roanoke. Mr. Repass was born in Roanoke County on November 15, 1888, and entered the service of the Norfolk & Western as clerk in the office of the auditor of receipts in June, 1905. Two months later he was

E. L. Repass

transferred to the office of the general passenger agent. He was appointed assistant ticket agent at the Roanoke passenger station in October, 1906, and was further advanced to the position of ticket agent in September, 1909. He remained in the latter position until March, 1926, when he was promoted to chief clerk in the passenger traffic department. In February, 1932, Mr. Repass became assistant general passenger agent, and on April 1, 1934, was appointed general passenger agent.

M. C. Burton, whose promotion to assistant freight traffic manager on the Atchison, Topeka & Santa Fe, with headquarters at Topeka, Kan. was announced in the *Railway Age* of March 30, was born in McCloud County, Kan., on May 25, 1881, and entered railway service in 1901, as a clerk on the Santa Fe in Kansas City, Mo. Four years later he was promoted to city freight agent at Kansas City, and in 1908, he was made traveling freight agent at Wellington, Kan., being transferred to Hutchinson, Kan., in 1916. In the following year Mr. Burton was appointed general agent at

M. C. Burton

Atchison Kan., and in 1920, he was appointed division freight agent at Oklahoma City, Okla. In 1922, he was appointed general industrial agent at Topeka, Kan., and on August 1, 1936, he was promoted to general freight and passenger agent of the Panhandle & Santa Fe, with headquarters at Amarillo, Tex. Mr. Burton was appointed general freight agent of the Gulf, Colorado & Santa Fe, with headquarters at Galveston, Tex., on September 1, 1939 the position he held at the time of his recent promotion.

D. J. McGanney, general freight agent on the Southern Pacific at San Francisco, Cal., has been appointed also general freight agent of the Northwestern Pacific, with the same headquarters, and **F. C. Lathrop,** general passenger agent on the Southern Pacific at San Francisco, has been appointed also general passenger agent of the Northwestern Pacific, with the same headquarters, succeeding **J. J. Geary,** general freight and passenger agent of the Northwestern Pacific, deceased.

ENGINEERING AND SIGNALING

A. S. Haigh has been appointed assistant signal engineer, Line Buffalo and East, of the New York Central.

B. R. Kulp, whose promotion effective April 1, to chief engineer of the Chicago & North Western, with headquarters at

B. R. Kulp

Chicago, was announced in the *Railway Age* of March 30, was born at Duncannon, Pa., on December 16 1883, and graduated from Rensselaer Polytechnic Institute in 1905. Mr. Kulp obtained his first railroad experience as an instrumentman on the Galena division of the North Western. Later he was advanced to draftsman and to assistant engineer of maintenance on that division, and in 1909 he was transferred to terminal improvement work at Clinton, Iowa. During 1910 and 1911 he served as assistant engineer on yard improvements at Proviso, Ill., and in 1912 he was promoted to division engineer of the Ashland division at Antigo, Wis. Mr. Kulp was appointed trainmaster on the Southern Illinois division at Benld, Ill., in 1917, where he remained until 1918, when he was transferred to the Galena division at Chicago. In 1920 he returned to the engineering department as division engineer of the Madison division, where he remained until May

1, 1931, when he was promoted to principal assistant engineer. Mr. Kulp was further advanced to engineer maintenance, with headquarters at Chicago on January 1, 1936.

David A. Ruhl, general building inspector of the Chicago, Rock Island & Pacific, has been promoted to engineer of buildings, with headquarters as before at Chicago, succeeding **A. T. Hawk,** who has been appointed engineer architect, a newly created position.

W. N. Hartman, assistant signal engineer of the Chesapeake & Ohio, has been appointed superintendent of telegraph and signals, with headquarters as before at Richmond, Va., succeeding **C. A. Taylor,** whose new position is listed elsewhere in these columns. **G. A. Washburn,** general signal inspector, has been appointed assistant superintendent of signals, with headquarters as before at Richmond.

J. J. Corcoran, whose promotion to signal engineer of the Lines West of Buffalo of the New York Central, with headquarters at Cleveland, Ohio, was announced in the *Railway Age* of March 30, was born at West Springfield, Mass., on April 14, 1889, and graduated in electrical engineering from the Worcester Polytechnic Institute in 1911. He entered railway service in 1906 on the Boston & Albany and served during the summer months for five successive years as waterboy, track inspector, material clerk and signal wireman's helper. In 1911, he entered the service of the New York Central at Buffalo, N. Y., serving successively as signal

J. J. Corcoran

helper, assistant maintainer, maintainer, maintenance inspector, construction inspector, draftsman, general draftsman, assistant engineer and chief inspector. From 1922 to 1924, Mr. Corcoran was engineer of construction, and in 1924, was promoted to assistant signal engineer, Lines East. In September, 1937, he was transferred to Cleveland, Ohio, where he was located at the time of his recent promotion.

Robert Bisbee Elsworth, whose promotion to signal engineer of the Lines Buffalo and East of the New York Central, with headquarters at Albany, N. Y., was announced in the *Railway Age* of March 30, was born in Muskegon, Mich., on February 14, 1880, and graduated in mechanical engineering from the University of Michigan in 1905. In June, 1901, Mr. Elsworth entered railroad service as a laborer in the signal department for the Michigan Central and in February, 1906, he was transferred to signal work on the Grand Central Terminal in New York during the electrification program. In April, 1911, he was appointed assistant signal engineer of the New York Central, Lines Buffalo and East, and the Boston

Robert Bisbee Elsworth

& Albany, being promoted in May, 1913, to engineer maintenance of signals of the New York Central, Buffalo and East. In March, 1921, the signal maintenance and engineering departments were combined, and he returned to his position as assistant signal engineer, which position he held until his recent promotion as signal engineer of the Lines Buffalo and East. Mr. Elsworth for many years has been active in the work of the Railway Signal Association and its successor the Signal Section, A. A. R., having served as chairman of the Battery Committee during the years 1912 to 1919, inclusive, and he was also a member of the Committee of Direction during the years 1928 to 1931, inclusive.

OBITUARY

W. J. Atkinson, former superintendent of the Canadian National, with headquarters at Cochrane, Ont., died on March 29, at the age of 60.

J. A. S. Redfield, who retired on August 31, 1937, as assistant engineer of maintenance of the Chicago & North Western, with headquarters at Chicago, died on April 4 at Ft. Lauderdale, Fla. He had been ill for some time.

J. G. Bloom, who retired on February 1, 1929, as system engineer of maintenance of way of the Chicago, Rock Island & Pacific, with headquarters at Chicago, died suddenly of a heart attack at Pasadena, Cal., on March 30.

Earl Haney, superintendent on the Wabash at Decatur, Ill., whose death on March 15, was announced in the *Railway Age* of March 30, was born at Silver Lake, Ind., on May 25, 1882, and entered railway service on September 1, 1901, as a telegrapher on the Cleveland, Cincinnati, Chicago & St. Louis (Big Four). The following year he went with the Wabash as a telegrapher on the Detroit division, and was later promoted successively to dispatcher, chief dispatcher and trainmaster on that division. In 1918 because of his wife's health, he moved to the Southwest and served as a dispatcher on the Mexico division of the Atchison, Topeka & Santa Fe. He returned to the Wabash in April, 1920, as an assistant trainmaster on the Detroit division, later being transferred to the Peru division. On September 1, 1925, he was promoted to trainmaster, and on May 1, 1926, he was advanced to superintendent of the Chicago Terminal division. Mr. Haney was transferred to Decatur on April 16, 1932, where he remained until his death.

Charles Francis Groves, secretary and treasurer of the Central of Georgia, who died at his home in Savannah, Ga., on March 19, was born January 1, 1877, at Blackville, S. C. He attended public school at Blackville, S. C., and Belmont Abbey College, Belmont, N. C. He entered railroad service on October, 1892, with the Central Railroad & Banking Co. of Georgia (now Central of Georgia), as clerk in the trainmaster's office at Griffin, Ga. In January, 1894, Mr. Groves became secretary to the division superintendent, with headquarters at Macon, Ga., and in December, 1896, chief clerk to the trainmaster, at Savannah. In January, 1902, he was appointed secretary to the president, becoming in turn chief clerk to the superintendent of transportation, with headquarters at Savannah, in April, 1904; inspector of yards and train service, in February, 1907; and car accountant, in June, 1907. Mr. Groves was elected secretary of the company in June, 1912, and from November 1, 1930, until his death held the positions of secretary and treasurer of the road. He was also a director of the Central of Georgia.

Michael Harrison Cahill, former chairman of the board and president of the Missouri-Kansas-Texas, whose death on March 26 at Palo Alto, Cal., was announced in the *Railway Age* of March 30, was born at Lexington, Ohio, on November 19, 1874, and entered railway service in 1891, with the Baltimore & Ohio as a messenger boy. He later advanced through the positions of operator, dispatcher, trainmaster, assistant superintendent, superintendent and general superintendent all on the B. & O., except for a short period of time when he served as superintendent of the Buffalo division of the Delaware, Lackawanna & Western. In March, 1920, he was appointed general manager of the Seaboard Air Line, and in June, 1922, he was promoted to vice-president in charge of operation. In April, 1928, he was granted a leave of absence, later resigning and in September, 1928, he was elected a director and chairman of the board of the Missouri-Kansas-Texas. Mr. Cahill subsequently became also president of the M-K-T. He resigned the presidency and chairmanship of the board on April 11, 1934.

Table of Revenues and Expenses begins on next left-hand page

REVENUES AND EXPENSES OF RAILWAYS

MONTH OF FEBRUARY AND TWO MONTHS OF CALENDAR YEAR 1940

Name of road		Av. mileage operated during period	Operating revenues: Freight	Passenger	Total (inc. misc.)	Operating expenses: Maintenance of Way and structures	Maintenance of Equipment	Traffic	Transportation	Total	Operating ratio	Net from railway operation	Operating income	Net railway operating income 1940	Net railway operating income 1939
Akron, Canton & Youngstown	Feb.	171	$178,317	$32	$183,648	$22,201	$18,854	$13,701	$56,298	$119,905	65.3	$63,743	$47,869	$36,224	$1,846
	2 mos.	171	375,600	71	389,468	44,423	40,885	27,165	116,070	246,573	63.3	142,895	109,906	83,543	41,446
Alton	Feb.	959	886,086	214,468	1,285,447	116,164	209,758	44,418	541,877	983,377	76.5	302,070	209,038	56,169	—10,417
	2 mos.	959	1,752,983	436,277	2,568,407	240,638	490,147	86,703	1,131,095	2,092,683	81.5	475,724	284,231	—41,020	—60,716
Atchison, Topeka & Santa Fe System	Feb.	13,421	8,657,487	1,301,493	11,084,825	1,426,645	2,794,199	454,935	4,392,208	9,417,510	85.0	1,667,315	488,253	438,346	—259,104
	2 mos.	13,421	18,071,655	2,772,109	23,052,487	3,057,493	5,701,019	901,457	9,187,644	19,597,662	85.0	3,454,825	1,058,051	978,408	—115,886
Atlanta & West Point	Feb.	93	109,599	22,671	153,969	22,741	25,574	8,588	63,182	130,596	84.8	23,373	11,734	1,998	—6,459
	2 mos.	93	219,844	48,101	310,684	44,052	50,748	16,693	130,093	262,802	84.6	47,882	24,764	3,098	—9,201
Western of Alabama	Feb.	133	97,777	22,599	136,157	20,939	28,422	8,088	56,985	123,750	90.9	12,407	229	3,365	2,336
	2 mos.	133	198,098	47,494	278,199	42,867	58,378	16,211	114,931	251,446	90.4	26,753	1,637	5,731	8,372
Atlanta, Birmingham & Coast	Feb.	639	223,263	47,577	291,741	47,686	49,179	23,414	126,982	266,345	91.3	25,396	—258	—19,398	5,899
	2 mos.	639	464,895	91,290	596,818	100,765	101,257	47,379	256,380	540,203	90.5	56,615	4,913	—36,183	28,448
Atlantic Coast Line	Feb.	5,102	3,097,261	1,307,641	4,878,643	430,293	836,038	184,313	1,784,737	3,480,541	71.3	1,398,102	923,102	659,348	622,917
	2 mos.	5,103	6,385,470	2,274,737	9,610,549	895,988	1,669,012	362,110	3,684,715	7,105,031	73.9	2,505,518	1,580,518	1,036,113	960,191
Charleston & Western Carolina	Feb.	343	208,775	1,643	215,278	25,533	45,857	9,180	71,182	157,131	73.0	58,147	33,147	27,774	36,277
	2 mos.	343	436,998	2,847	448,527	50,912	93,354	17,339	148,198	320,886	71.5	127,641	77,641	67,230	75,662
Baltimore & Ohio	Feb.	6,382	11,328,457	675,452	12,724,988	1,009,983	3,120,700	404,445	4,984,666	10,141,948	79.7	2,583,040	1,637,354	1,348,025	1,260,259
	2 mos.	6,382	24,138,531	1,525,490	27,199,429	2,242,140	6,821,777	765,039	10,443,626	21,485,996	79.0	5,713,433	3,790,238	3,114,334	2,931,178
Staten Island Rapid Transit	Feb.	24	54,074	62,210	119,787	8,216	22,817	1,133	75,645	118,317	98.8	1,470	—24,655	—29,985	—36,205
	2 mos.	24	112,569	125,944	252,354	17,048	45,949	2,072	157,525	244,309	96.8	8,045	—47,507	—60,449	—69,370
Bangor & Aroostook	Feb.	603	478,746	16,891	512,157	89,873	90,331	4,738	133,844	343,041	67.0	169,116	120,964	118,096	165,578
	2 mos.	603	1,001,752	32,382	1,068,864	179,213	176,316	10,235	278,605	694,454	65.0	374,410	271,558	266,277	333,142
Bessemer & Lake Erie	Feb.	224	642,601	622	652,320	63,680	273,823	12,409	170,401	552,051	84.6	100,269	48,134	98,335	—27,525
	2 mos.	224	1,238,519	1,303	1,263,885	125,382	567,765	24,386	339,222	1,120,827	88.7	143,058	39,429	156,054	—85,276
Boston & Maine	Feb.	1,910	2,615,272	629,380	3,739,453	597,587	532,796	65,401	1,563,116	2,908,957	77.8	830,496	531,950	307,079	306,711
	2 mos.	1,910	5,628,520	1,217,750	7,818,861	1,076,325	1,153,188	128,108	3,221,862	5,894,413	75.4	1,924,448	1,323,933	855,270	785,432
Burlington, Rock Island	Feb.	255	93,304	15,535	116,354	16,050	16,488	4,421	47,741	94,370	81.1	21,984	11,492	5,321	—8,863
	2 mos.	255	176,358	33,800	226,414	32,136	35,318	9,311	102,667	199,477	88.1	26,937	6,294	—6,659	—14,421
Cambria & Indiana	Feb.	37	136,245	.....	136,328	5,455	40,775	399	14,609	66,579	48.84	69,749	34,167	102,718	98,136
	2 mos.	37	289,139	.....	289,347	11,020	78,511	817	30,315	132,651	45.84	156,696	79,954	223,829	214,162
Canadian Pacific Lines in Maine	Feb.	234	328,340	11,410	351,492	24,611	49,602	9,242	123,825	213,033	60.6	138,459	126,898	102,501	56,610
	2 mos.	234	689,570	25,171	740,845	48,139	101,898	17,490	237,099	415,879	56.1	324,966	301,770	242,212	99,600
Canadian Pacific Lines in Vermont	Feb.	91	81,130	7,533	99,250	11,585	25,437	3,414	66,843	110,379	111.2	—11,129	—18,096	—37,375	—41,984
	2 mos.	91	170,158	19,597	210,138	22,442	54,272	6,395	137,862	226,971	107.9	—16,653	—30,506	—70,284	—95,711
Central of Georgia	Feb.	1,871	1,012,367	119,979	1,284,867	187,748	265,682	52,468	584,999	1,172,488	91.3	112,379	—3,475	—17,012	—10,812
	2 mos.	1,871	2,067,214	244,400	2,618,301	364,460	539,619	109,972	1,192,743	2,366,330	90.4	251,971	20,375	—11,823	29,164
Central of New Jersey	Feb.	710	2,189,431	319,489	2,670,542	236,107	627,038	44,559	1,176,295	2,171,369	81.3	499,173	163,409	—54,742	—97,631
	2 mos.	710	4,927,402	657,495	5,942,221	440,946	1,223,311	88,757	2,502,374	4,427,321	74.5	1,514,900	771,095	335,937	—50,071
Central Vermont	Feb.	422	446,250	26,912	511,573	68,461	90,572	11,542	219,831	408,235	79.8	103,338	82,634	52,425	—14,843
	2 mos.	422	881,805	67,296	1,025,222	119,085	193,483	22,602	459,544	831,222	81.1	194,000	147,006	75,714	—47,228
Chesapeake & Ohio	Feb.	3,117	9,500,810	206,875	9,975,791	947,045	1,976,988	193,403	2,483,923	5,880,359	59.0	4,095,432	2,846,615	2,996,188	2,026,414
	2 mos.	3,117	19,696,803	472,928	20,736,541	1,917,347	4,081,625	408,186	5,171,306	12,200,198	58.8	8,536,343	5,920,386	6,461,816	4,455,885
Chicago & Eastern Illinois	Feb.	925	1,002,789	137,398	1,284,584	137,235	235,101	55,747	529,907	1,021,063	79.5	263,521	184,521	57,865	938
	2 mos.	925	2,063,161	303,762	2,663,927	281,040	483,190	112,699	1,101,974	2,110,503	79.2	553,424	395,424	139,034	44,122
Chicago & Illinois Midland	Feb.	131	332,630	789	343,226	38,112	69,965	19,759	85,764	233,109	67.9	110,117	77,843	76,155	61,363
	2 mos.	131	710,048	1,463	729,146	82,801	140,579	44,717	195,003	501,881	68.8	227,265	160,466	155,612	126,149
Chicago & North Western	Feb.	8,327	4,892,392	796,646	6,409,536	980,615	1,412,370	184,569	2,917,494	5,803,913	90.6	605,623	1,780	—287,533	—668,825
	2 mos.	8,327	10,059,785	1,705,386	13,286,527	1,796,792	2,927,696	369,657	6,079,559	11,812,363	88.9	1,474,164	246,206	—284,777	—883,572
Chicago, Burlington & Quincy	Feb.	9,004	5,898,851	624,702	7,263,531	629,345	1,511,135	245,649	2,870,085	5,537,712	76.2	1,725,819	934,468	649,579	333,454
	2 mos.	9,004	12,290,991	1,358,953	15,203,722	1,346,684	3,194,927	485,036	6,064,761	11,659,798	76.7	3,543,924	2,005,584	1,401,245	1,085,938
Chicago Great Western	Feb.	1,502	1,228,590	29,372	1,355,949	188,234	244,068	58,544	556,415	1,098,814	81.0	257,135	162,681	—13,511	—30,235
	2 mos.	1,502	2,616,510	70,116	2,891,328	391,243	498,136	119,247	1,168,962	2,279,819	78.9	611,509	422,715	56,761	3,605
Chicago, Indianapolis & Louisville	Feb.	549	649,422	36,049	749,468	61,533	132,567	28,537	295,078	551,617	73.6	197,851	155,938	62,083	—128,862
	2 mos.	549	1,360,559	85,448	1,579,108	124,545	283,152	57,301	615,182	1,151,802	72.9	427,306	342,437	151,811	—218,835

Continued on next left-hand page

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LIMA LOCOMOTIVE WORKS, INCORPORATED, LIMA, OHIO

LIMA LOCOMOTIVE WORKS INCORPORATED

REVENUES AND EXPENSES OF RAILWAYS

MONTH OF FEBRUARY AND TWO MONTHS OF CALENDAR YEAR 1940—CONTINUED

Name of road		Av. mileage operated during period	Operating revenues: Freight	Passenger	Total (inc. misc.)	Operating expenses: Maintenance of Way and structures	Maintenance of Equipment	Traffic	Transportation	Total	Operating ratio	Net from railway operation	Operating income	Net railway operating income 1940	Net railway operating income 1939
Chicago, Milwaukee, St. Paul & Pacific	Feb.	10,822	$6,925,960	$534,282	$8,201,835	$800,394	$1,639,942	$221,146	$3,343,595	$6,376,414	77.7	$1,825,421	$1,148,421	$792,362	$40,146
	2 mos.	10,886	14,602,450	1,201,984	17,369,587	1,687,441	3,336,670	435,256	6,969,288	13,188,619	75.9	4,180,968	2,790,968	2,010,094	477,159
Chicago, Rock Island & Pacific	Feb.	7,835	4,855,376	600,507	5,992,872	622,046	1,199,879	254,429	2,497,286	4,900,381	81.8	1,092,491	603,769	197,709	—201,471
	2 mos.	308	1,565,973	6,726	1,583,324	1,288,277	2,435,763	510,109	5,168,274	10,086,629	82.0	2,216,686	1,230,245	503,528	66,877
Chicago, St. Paul, Minneapolis & Omaha	Feb.	1,629	1,053,898	109,024	1,245,396	160,762	250,753	40,019	650,279	1,170,511	94.0	74,885	—35,754	—167,872	—190,546
	2 mos.	1,629	2,313,005	242,820	2,727,293	261,053	511,717	79,480	1,384,377	2,375,974	87.1	351,319	122,017	—123,380	—286,000
Clinchfield Railroad	Feb.	308	794,357	3,104	802,530	29,887	112,247	19,704	142,995	320,805	40.0	481,725	390,622	399,356	244,218
	2 mos	308	1,565,973	6,726	1,583,324	59,191	229,626	38,366	289,348	648,603	41.0	934,721	752,241	778,291	557,272
Colorado & Southern	Feb.	787	396,360	28,603	474,533	38,780	111,210	13,348	206,446	394,945	83.2	79,588	3,156	—16,354	—31,069
	2 mos.	787	872,601	60,171	1,035,943	86,999	195,968	27,754	445,353	808,864	78.1	227,079	72,893	39,264	—90,615
Fort Worth & Denver City	Feb.	902	417,684	46,174	455,313	46,972	77,997	17,797	162,326	335,386	73.7	119,927	82,656	55,763	6,725
	2 mos.	902	824,345	86,827	906,247	91,830	168,768	37,510	333,704	695,208	76.7	211,039	136,079	78,977	16,470
Columbus & Greenville	Feb.	168	83,409	4,124	93,250	15,088	14,734	4,334	35,014	80,539	86.4	12,711	6,292	5,789	7,388
	2 mos.	168	158,202	9,156	179,255	32,067	27,802	8,748	71,829	162,607	90.7	16,648	3,661	4,000	13,517
Delaware & Hudson	Feb.	846	1,715,332	76,513	1,864,237	177,887	381,608	41,455	777,730	1,462,131	78.4	402,106	303,995	295,902	258,801
	2 mos.	846	3,953,179	177,540	4,315,937	462,124	810,676	84,418	1,620,789	3,150,342	73.0	1,165,595	856,131	807,333	787,709
Delaware, Lackawanna & Western	Feb.	995	3,215,252	500,906	4,092,978	254,698	837,542	108,792	1,991,840	3,339,349	81.6	753,629	327,829	248,750	100,908
	2 mos.	995	7,065,829	1,049,983	8,922,520	522,526	1,723,199	217,844	4,166,400	6,931,330	77.7	1,991,190	1,130,290	955,756	592,434
Denver & Rio Grande Western	Feb.	2,554	1,552,973	56,461	1,696,601	185,912	511,783	69,411	677,112	1,528,653	90.1	167,948	—40,778	—80,997	—43,581
	2 mos.	2,554	3,440,770	175,404	3,803,220	326,840	1,034,362	139,033	1,462,916	3,131,871	82.3	671,349	249,483	163,970	101,440
Denver & Salt Lake	Feb.	232	213,392	7,486	228,788	15,596	45,871	2,951	65,361	139,450	61.0	89,338	64,139	105,430	87,096
	2 mos.	232	516,885	14,448	549,255	30,409	89,425	5,788	153,949	299,758	54.6	249,497	198,460	277,733	169,380
Detroit & Mackinac	Feb.	242	37,721	1,695	45,811	8,124	11,865	875	21,967	46,054	100.5	—243	—3,374	—6,217	4,003
	2 mos.	242	79,951	5,613	98,232	16,365	23,419	1,755	47,476	95,507	97.2	2,725	—3,735	—9,479	4,640
Detroit & Toledo Shore Line	Feb.	50	354,381	.....	355,597	16,983	22,523	8,738	90,750	146,366	41.2	209,231	161,379	104,074	62,261
	2 mos.	50	758,523	.....	761,522	35,224	48,074	17,531	188,650	304,363	40.0	457,159	356,550	232,337	157,408
Detroit, Toledo & Ironton	Feb.	472	747,922	147	764,824	70,218	83,959	12,359	168,277	354,548	46.4	410,276	315,856	284,876	167,152
	2 mos.	472	1,589,073	336	1,627,772	138,455	165,446	24,348	343,490	712,112	43.7	915,660	716,867	646,424	464,494
Duluth, Missabe & Iron Range	Feb.	541	114,149	2,262	134,238	112,650	204,947	3,818	150,586	501,319	373.5	—367,081	—519,481	—517,953	—561,320
	2 mos.	541	220,785	3,068	264,544	220,574	415,487	8,333	309,172	1,014,747	383.6	—750,203	—1,050,228	—1,057,677	—1,121,321
Duluth, Winnipeg & Pacific	Feb.	175	124,335	805	128,341	20,120	19,204	2,132	49,836	94,416	73.6	33,925	23,942	5,611	—8,354
	2 mos.	175	242,364	1,797	250,277	36,721	41,494	4,201	100,089	188,800	75.4	61,477	41,781	5,453	—2,394
Elgin, Joliet & Eastern	Feb.	390	1,434,031	47	1,638,805	124,670	314,330	14,285	646,429	1,134,468	69.2	504,337	387,756	290,257	218,119
	2 mos.	390	3,146,385	55	3,621,471	256,137	634,805	29,912	1,406,770	2,396,423	66.2	1,225,048	919,183	685,361	540,450
Erie	Feb.	2,268	5,556,262	353,568	6,310,413	505,939	1,310,321	175,612	2,598,734	4,851,364	76.9	1,459,049	893,707	600,016	363,686
	2 mos.	2,268	11,856,173	751,233	13,427,468	983,142	2,741,320	350,607	5,393,049	9,994,625	74.4	3,432,843	2,288,682	1,680,333	1,108,791
Florida East Coast	Feb.	685	562,462	637,046	1,334,447	102,551	142,317	31,935	386,964	758,853	56.9	575,594	499,210	449,688	439,165
	2 mos.	685	1,202,735	1,073,643	2,543,688	200,176	328,439	63,200	803,237	1,586,166	62.4	957,522	807,121	708,091	698,244
Georgia Railroad	Feb.	329	262,886	9,936	296,668	35,714	46,474	17,982	135,904	249,448	84.1	47,220	32,821	40,097	31,732
	2 mos.	329	526,546	21,932	594,371	67,861	97,173	35,984	277,941	505,975	85.1	88,396	59,226	72,294	90,264
Georgia & Florida	Feb.	408	81,756	1,052	85,784	23,018	14,897	8,400	36,498	87,950	102.5	—2,166	—10,375	—14,245	—14,738
	2 mos.	408	165,017	2,158	173,464	45,850	31,627	17,012	75,772	180,840	104.3	—7,376	—23,882	—31,868	—26,832
Grand Trunk Western	Feb.	1,029	1,806,592	64,774	2,020,653	235,675	384,216	40,340	806,479	1,532,458	75.8	488,195	364,112	280,004	83,380
	2 mos.	1,029	3,707,180	145,513	4,145,300	476,698	789,925	79,269	1,676,917	3,152,815	76.1	992,485	740,627	566,122	180,303
Canadian National Lines in New England	Feb.	172	116,838	2,960	133,985	32,495	24,232	327	68,106	130,166	97.2	3,819	—12,277	—54,791	—55,550
	2 mos.	172	246,543	7,463	282,256	70,680	46,734	2,905	147,827	283,184	100.3	—928	—33,118	—116,540	—121,996
Great Northern	Feb.	8,070	4,378,427	243,162	5,051,723	642,604	1,130,169	189,732	2,071,643	4,264,688	84.4	787,035	130,519	13,322	—492,170
	2 mos.	8,070	9,161,533	577,554	10,642,558	1,234,922	2,406,999	367,892	4,349,940	8,838,327	83.0	1,804,231	450,796	242,748	—591,453
Green Bay & Western	Feb.	234	128,274	236	133,428	17,974	16,053	6,740	46,827	92,854	68.9	40,574	26,527	22,187	14,251
	2 mos.	234	271,318	587	282,111	40,332	33,746	14,124	99,813	198,082	70.2	84,029	55,627	46,036	45,362
Gulf & Ship Island	Feb.	259	76,645	2,101	87,802	20,015	11,903	2,760	46,117	84,407	96.1	3,395	—12,465	—18,674	—29,777
	2 mos.	259	148,810	7,276	174,127	39,456	28,696	5,521	102,525	184,722	106.1	—10,595	—43,077	—57,049	—63,051
Gulf, Mobile & Northern	Feb.	827	487,044	17,063	526,428	72,849	79,687	37,719	143,901	369,762	70.2	156,666	106,666	69,079	41,085
	2 mos.	827	1,013,903	31,510	1,093,021	144,455	166,326	80,826	305,233	771,786	70.6	321,235	221,235	146,865	107,535

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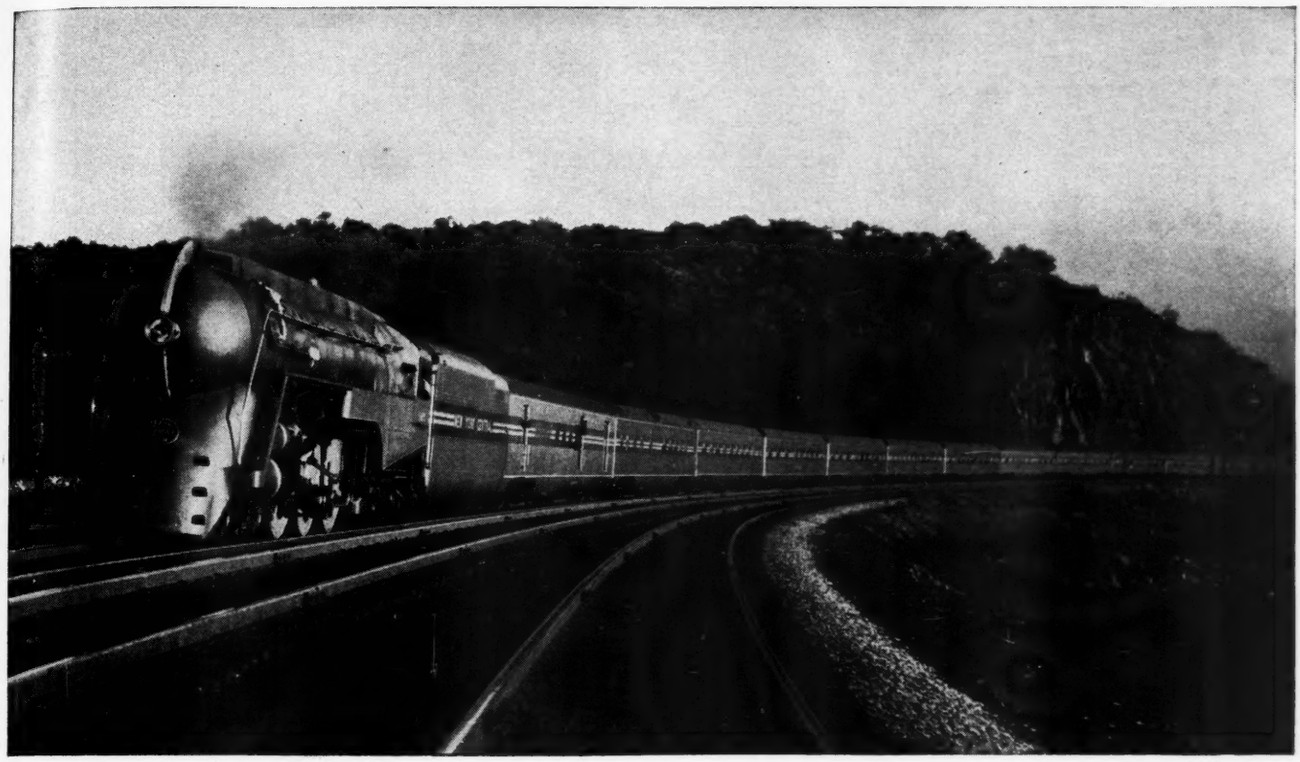


Comfort...Speed...On-Time Runs

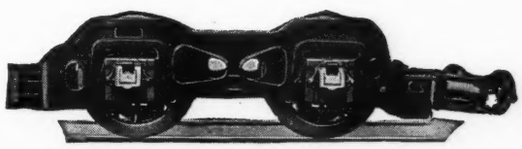
of the
"TWENTIETH CENTURY"

with Booster* Power

Nothing has been left undone to give the Twentieth Century every luxury and every mechanical facility to promote comfort and speed.

The Locomotive Booster is among the important factors in obtaining these essentials. There is no jerking, no taking of slack as the "Century" pulls out of a station. The start is imperceptible. Smoothly and rapidly the train accelerates until the Booster cuts out and turns the work over to the main engine.

For those traveling on this famous train the Booster promotes riding comfort and helps maintain the fast operating schedule. Even though the "Century" encounters few grades, the Booster pays its way in good-will, in on-time runs and in the economical locomotive operation it makes possible. It protects the investment in de luxe equipment.



*Trademark Registered United States Patent Office

FRANKLIN RAILWAY SUPPLY COMPANY, INC.

NEW YORK
CHICAGO
MONTREAL

REVENUES AND EXPENSES OF RAILWAYS

MONTH OF FEBRUARY AND TWO MONTHS OF CALENDAR YEAR 1940—CONTINUED

Name of road		Av. mileage operated during period	Operating revenues: Freight	Passenger	Total (inc. misc.)	Operating expenses: Maintenance of Way and structures	Maintenance of Equipment	Traffic	Transportation	Total	Operating ratio	Net from railway operation	Operating income	Net railway operating income 1940	1939
Illinois Central	Feb.	4,949	$6,672,459	$780,734	$7,995,189	$756,570	$1,675,697	$219,340	$3,107,981	$6,088,845	76.2	$1,906,344	$1,197,424	$1,145,251	$779,058
	2 mos.	4,949	13,901,886	1,659,048	16,677,413	1,539,011	3,401,497	443,028	6,640,506	12,701,301	76.2	3,976,112	2,517,834	2,364,319	1,840,355
Yazoo & Mississippi Valley	Feb.	1,608	1,128,928	47,831	1,244,167	102,538	154,529	34,180	477,535	812,114	65.3	432,053	292,394	232,209	41,309
	2 mos.	1,613	2,184,034	103,370	2,429,261	216,079	325,384	68,983	1,011,346	1,713,254	70.5	716,007	434,954	295,838	79,615
Illinois Central System	Feb.	6,557	7,801,387	828,565	9,239,356	859,108	1,830,226	253,520	3,585,516	6,900,959	74.7	2,338,397	1,487,847	1,385,373	829,280
	2 mos.	6,562	16,085,920	1,762,418	19,106,674	1,755,090	3,726,881	512,011	7,651,852	14,414,555	75.4	4,692,119	2,948,847	2,675,983	1,937,796
Illinois Terminal	Feb.	481	384,394	58,563	480,530	47,422	69,236	16,087	170,219	320,868	66.77	159,662	113,102	88,722	47,595
	2 mos.	481	807,599	121,503	1,006,238	96,680	140,632	33,874	359,764	666,566	66.24	339,672	245,530	191,859	105,094
Kansas City Southern	Feb.	879	1,010,959	20,393	1,136,457	93,584	163,454	54,829	339,851	708,222	62.3	428,235	330,235	276,955	231,365
	2 mos.	879	2,073,531	46,392	2,339,685	194,589	332,469	111,317	717,304	1,468,005	62.7	871,680	675,680	566,694	498,640
Kansas, Oklahoma & Gulf	Feb.	328	172,415	338	175,801	9,446	10,682	8,757	40,554	79,517	45.2	96,284	75,347	58,759	69,512
	2 mos.	328	375,187	704	382,043	19,197	19,951	17,609	83,694	161,163	42.2	220,880	179,569	147,168	169,801
Lake Superior & Ishpeming	Feb.	156	28,361	52	29,373	15,104	28,966	606	20,608	71,209	242.4	—41,836	—63,878	—62,173	—57,926
	2 mos.	156	56,075	105	58,933	32,143	59,188	1,169	41,901	146,460	248.5	—87,527	—131,979	—129,061	—136,892
Lehigh & Hudson River	Feb.	96	126,112	.....	127,160	8,852	22,920	3,598	44,492	85,960	67.6	41,200	26,103	16,292	15,147
	2 mos.	96	258,255	.....	260,180	17,845	48,114	7,117	92,571	178,570	68.6	81,610	51,724	31,080	36,495
Lehigh & New England	Feb.	190	297,098	.....	298,907	27,440	60,911	7,087	103,397	214,941	71.9	83,966	60,029	66,602	57,940
	2 mos.	190	665,853	.....	669,075	52,600	124,788	14,181	221,762	445,225	66.5	223,850	164,514	172,374	126,858
Lehigh Valley	Feb.	1,282	3,232,587	159,607	3,612,108	259,013	644,482	103,133	1,680,650	2,808,238	77.7	803,870	492,928	210,163	457,888
	2 mos.	1,282	7,160,841	317,159	7,951,725	473,097	1,344,082	211,518	3,499,528	5,773,968	72.6	2,177,757	1,555,868	998,161	1,093,506
Louisiana & Arkansas	Feb.	846	593,663	6,079	623,114	80,900	83,689	29,231	181,365	402,616	64.6	220,498	166,475	121,594	80,002
	2 mos.	846	1,247,835	13,265	1,309,597	162,831	190,804	59,270	378,687	842,682	64.3	466,915	353,816	261,186	177,645
Louisville & Nashville	Feb.	4,871	6,904,894	573,597	7,930,011	809,410	2,067,828	189,726	2,754,824	6,098,176	76.9	1,831,835	1,133,712	1,127,315	896,006
	2 mos.	4,871	14,445,864	1,153,330	16,583,501	1,635,285	4,203,548	376,792	5,757,860	12,538,397	75.6	4,045,104	2,537,173	2,559,575	2,270,042
Maine Central	Feb.	991	908,888	63,965	1,049,540	139,096	186,615	11,381	374,689	744,081	70.9	305,459	224,710	184,819	156,755
	2 mos.	991	1,891,578	131,271	2,189,836	274,318	394,944	22,487	791,696	1,550,417	70.8	639,419	483,803	393,567	335,649
Midland Valley	Feb.	352	106,252	7	108,668	8,367	7,407	2,597	29,968	54,472	50.1	54,196	43,400	32,552	29,217
	2 mos.	352	247,181	12	251,830	14,233	14,509	5,242	68,158	114,295	45.4	137,535	115,363	92,900	63,284
Minneapolis & St. Louis	Feb.	1,512	636,285	4,654	673,318	57,002	137,289	50,546	260,149	542,257	80.5	131,061	87,120	47,217	19,116
	2 mos.	1,512	1,315,623	10,200	1,389,884	123,431	263,303	104,852	554,755	1,123,262	80.8	266,622	174,700	93,312	53,463
Minneapolis, St. Paul & Sault Ste. Marie	Feb.	4,285	1,706,183	51,138	1,898,494	246,097	393,598	59,103	904,458	1,688,363	88.9	210,131	46,007	—45,428	—329,404
	2 mos.	4,285	3,571,664	114,319	3,973,464	502,670	784,728	123,774	1,905,065	3,483,852	87.7	489,612	149,662	—30,082	—545,130
Duluth, South Shore & Atlantic	Feb.	550	130,761	5,795	147,340	26,722	33,014	6,376	74,104	146,448	99.4	892	—12,213	—13,472	—51,611
	2 mos.	550	262,766	13,504	298,455	57,670	64,777	12,641	154,504	302,230	101.3	—3,775	—30,962	—34,295	—74,205
Spokane International	Feb.	152	45,114	603	52,697	8,596	6,207	2,145	20,883	37,518	71.2	15,179	10,217	7,191	378
	2 mos.	152	95,051	1,316	111,036	15,956	12,931	4,443	42,124	79,515	71.6	31,521	21,562	15,041	14,268
Mississippi Central	Feb.	150	61,871	1,796	65,890	8,821	10,036	7,138	20,708	51,272	77.8	14,618	10,124	5,540	—10,920
	2 mos.	150	123,759	4,593	133,074	18,827	19,545	13,931	42,204	104,037	78.2	29,037	20,069	11,258	—13,612
Missouri & Arkansas	Feb.	364	81,006	1,296	88,567	20,229	10,395	6,635	29,094	70,907	80.0	17,660	13,451	6,414	234
	2 mos.	364	159,811	2,604	182,077	39,006	20,554	13,453	60,540	143,053	78.6	39,024	30,512	14,910	3,511
Missouri-Illinois	Feb.	193	144,740	276	146,701	12,981	23,216	3,521	43,550	88,396	60.3	58,305	44,218	34,179	40,616
	2 mos.	193	325,500	595	329,577	27,199	45,318	6,086	95,297	184,359	55.9	145,218	114,721	93,412	84,210
Missouri-Kansas-Texas Lines	Feb.	3,294	1,724,278	136,259	2,064,651	248,304	353,891	102,101	868,399	1,689,308	81.8	375,343	245,714	64,445	—64,071
	2 mos.	3,294	3,512,735	323,565	4,255,689	506,439	708,681	211,041	1,806,456	3,474,484	81.6	781,205	499,974	139,511	—55,994
Missouri Pacific	Feb.	7,146	5,693,939	420,372	6,715,295	767,719	1,353,855	242,740	2,598,088	5,239,285	78.0	1,476,010	962,958	595,405	217,256
	2 mos.	7,146	11,983,704	872,780	14,072,871	1,522,230	2,707,353	486,615	5,550,005	10,812,647	76.8	3,260,224	2,233,367	1,510,033	809,460
Gulf Coast Lines	Feb.	1,759	1,397,906	34,187	1,495,121	194,143	182,962	43,688	407,321	878,868	58.78	616,253	536,792	396,710	433,157
	2 mos.	1,759	2,794,304	69,891	2,990,644	388,306	368,217	90,324	839,894	1,787,789	59.78	1,202,855	1,044,457	778,781	821,580
International Great Northern	Feb.	1,155	680,367	97,147	886,209	147,069	191,666	29,733	392,498	813,123	91.8	73,086	10,253	—58,488	—118,263
	2 mos.	1,155	1,423,086	175,930	1,818,666	303,611	382,141	59,586	802,148	1,652,811	90.9	165,855	38,502	—98,180	—176,682
Mobile & Ohio	Feb.	1,181	808,223	22,648	871,531	152,839	178,079	43,501	333,878	754,256	86.6	117,275	52,080	—20,626	12,892
	2 mos.	1,181	1,634,065	46,075	1,761,267	301,716	374,139	88,258	690,609	1,539,139	87.4	222,128	90,668	—47,761	12,686
Monongahela	Feb.	172	452,938	516	456,697	35,340	38,771	384	99,241	176,317	38.6	280,380	238,285	159,657	82,362
	2 mos.	172	916,188	1,029	924,208	72,955	79,483	929	208,513	367,039	39.7	557,169	477,604	314,705	167,100

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NO. 115 OF A SERIES OF FAMOUS ARCHES OF THE WORLD

LOCKWOOD VIADUCT

ENGLAND

This 1342 ft. viaduct is situated on the Huddersfield & Penistone Railway, a section of the London, Midland & Scottish consolidation. Originally built in 1850 for the Huddersfield & Sheffield Junction Railroad, connecting the town of Huddersfield with the Manchester, Sheffield & Lincolnshire Railway at Penistone, it later became the Lancashire & Yorkshire Railway, and eventually the L. M. S. It consists of 34 arches of 30 ft. span and two larger openings over the highways. The maximum height over the bed of the river Holme, beneath, is 125 ft. » » » *The Security Sectional Arch has played a leading part in providing low-cost steam transportation and fuel economy. But only when you have a complete arch, with every brick in place, can you realize the true efficiency of your arch.*

There's More to* SECURITY ARCHES *Than Just Brick

HARBISON-WALKER REFRACTORIES CO.

Refractory Specialists

AMERICAN ARCH CO.
INCORPORATED
60 EAST 42nd STREET, NEW YORK, N. Y.
Locomotive Combustion Specialists

REVENUES AND EXPENSES OF RAILWAYS

MONTH OF FEBRUARY AND TWO MONTHS OF CALENDAR YEAR 1940—CONTINUED

Name of road		Av. mileage operated during period	Operating revenues: Freight	Passenger	Total (inc. misc.)	Operating expenses: Maintenance of: Way and structures	Equipment	Traffic	Transportation	Total	Operating ratio	Net from railway operation	Operating income	Net railway operating income: 1940	1939
Montour	Feb.	51	$142,243	.....	$144,196	$8,484	$37,721	$922	$44,705	$97,612	67.7	$46,584	$44,745	$75,169	$43,576
	2 mos.	51	307,170	.....	311,284	16,410	75,821	1,925	94,107	200,715	64.5	110,569	83,214	139,522	89,303
Nashville, Chattanooga & St. Louis	Feb.	1,111	922,816	$125,539	1,170,773	118,836	224,331	70,130	488,241	963,703	82.3	207,070	127,844	97,120	120,170
	2 mos.	1,111	1,903,507	256,797	2,433,574	221,809	464,927	142,365	1,002,295	1,945,400	79.9	488,174	329,052	267,593	355,461
Nevada Northern	Feb.	165	41,857	674	46,386	7,171	2,606	1,196	9,930	25,810	55.6	20,576	9,567	11,927	9,804
	2 mos.	165	97,458	1,299	106,641	15,079	5,790	2,448	20,156	53,639	50.3	53,002	31,469	35,715	32,990
New York Central	Feb.	10,986	20,752,486	4,461,082	28,000,768	2,761,232	5,998,042	520,675	11,266,383	21,788,051	77.8	6,212,717	3,157,502	2,002,842	561,651
	2 mos.	10,977	43,942,103	9,815,446	59,737,346	5,576,748	12,252,445	1,064,969	23,752,764	45,238,456	75.7	14,498,890	8,319,609	5,798,938	2,708,656
Pittsburgh & Lake Erie	Feb.	233	1,571,334	44,511	1,665,368	132,976	686,794	26,562	543,584	1,465,466	88.0	199,902	24,158	279,177	146,300
	2 mos.	233	3,352,192	91,757	3,550,394	260,405	1,415,759	56,822	1,141,906	3,031,396	85.4	518,998	152,405	629,252	321,630
New York, Chicago & St. Louis	Feb.	1,704	3,484,691	45,381	3,633,768	337,620	597,871	118,705	1,377,244	2,547,174	70.1	1,086,594	874,510	564,451	432,299
	2 mos.	1,704	7,361,732	112,130	7,689,827	700,120	1,212,464	243,232	2,848,358	5,240,374	68.1	2,449,453	2,013,633	1,359,365	971,056
New York, New Haven & Hartford	Feb.	1,866	3,641,159	2,129,610	6,395,674	809,495	1,135,415	93,703	2,604,384	5,006,451	78.3	1,389,223	834,223	237,141	384,083
	2 mos.	1,866	7,843,413	4,263,892	13,429,851	1,473,912	2,315,142	192,356	5,382,751	10,119,907	75.4	3,309,944	2,199,944	978,175	938,357
New York Connecting	Feb.	21	191,321	.....	198,217	35,239	Cr. 4,813	.....	19,672	51,727	26.1	146,490	103,457	109,615	119,754
	2 mos.	21	400,282	.....	415,267	50,286	5,435	.....	53,886	112,532	27.1	302,735	217,069	234,091	280,559
New York, Ontario & Western	Feb.	576	316,601	7,215	362,088	50,366	93,496	16,406	226,667	407,566	112.6	—45,478	—92,129	—113,753	—20,212
	2 mos.	576	718,854	11,624	811,119	100,582	187,636	31,742	485,917	847,647	104.5	—36,528	—130,351	—173,178	—31,438
New York, Susquehanna & Western	Feb.	144	200,816	18,028	230,681	13,631	22,659	1,893	107,473	158,097	68.5	72,584	42,083	12,268	15,234
	2 mos.	144	467,757	35,885	529,748	28,621	45,816	5,250	224,856	328,126	61.9	201,622	140,307	81,445	59,026
Norfolk & Western	Feb.	2,191	7,650,530	133,930	7,988,690	762,591	1,669,983	137,223	1,792,982	4,549,398	56.9	3,439,292	2,260,830	2,556,172	1,917,235
	2 mos.	2,191	16,129,017	313,454	16,889,363	1,551,904	3,349,755	286,112	3,765,004	9,339,156	55.3	7,550,207	5,106,451	5,656,474	4,018,169
Norfolk Southern	Feb.	805	290,610	1,969	306,466	71,163	51,686	25,721	129,090	300,035	97.9	6,431	—26,747	—42,054	—27,230
	2 mos.	805	600,536	4,497	633,997	141,153	104,588	49,851	265,857	604,481	95.3	29,516	—36,679	—65,892	—62,245
Northern Pacific	Feb.	6,720	3,635,294	212,909	4,223,657	581,715	984,302	150,384	1,763,529	3,737,340	88.5	486,317	—50,090	232,626	—213,732
	2 mos.	6,720	7,484,541	513,297	8,810,889	1,151,142	1,932,918	303,021	3,739,838	7,663,837	87.0	1,147,052	61,834	691,265	57,478
Northwestern Pacific	Feb.	352	136,205	36,707	192,451	64,835	47,727	2,695	124,259	249,945	129.9	—57,494	—78,704	—86,101	—77,579
	2 mos.	352	282,919	74,875	402,382	122,791	97,100	8,402	262,257	511,799	127.2	—109,417	—149,496	—166,729	—148,638
Oklahoma City-Ada-Atoka	Feb.	132	19,441	268	21,258	5,055	1,457	716	10,360	19,222	90.4	2,036	—530	—3,952	1,269
	2 mos.	132	39,645	551	43,743	8,800	2,560	1,501	21,724	37,905	86.7	5,838	725	—6,788	2,659
Pennsylvania	Feb.	10,270	26,300,082	5,302,235	34,384,285	3,176,006	7,666,070	659,153	13,428,854	26,177,965	76.1	8,206,320	5,098,985	4,466,509	3,771,073
	2 mos.	10,270	55,133,315	11,811,311	72,880,059	6,737,254	16,384,406	1,375,209	28,145,204	55,214,610	75.8	17,665,449	11,393,309	10,168,483	8,804,762
Long Island	Feb.	379	489,649	1,078,017	1,649,476	215,744	365,785	6,998	894,553	1,517,364	92.0	132,112	—67,364	—238,715	—192,771
	2 mos.	379	1,073,902	2,261,682	3,499,591	416,990	746,816	14,315	1,869,595	3,116,481	89.1	383,110	—15,633	—345,344	—290,735
Pennsylvania-Reading Seashore Lines	Feb.	411	272,949	96,089	384,858	86,649	93,327	5,170	262,020	461,467	119.9	—76,609	—146,208	—217,319	—183,905
	2 mos.	411	544,871	181,090	759,509	165,965	192,245	11,367	537,848	942,771	124.1	—183,262	—321,854	—465,227	—391,403
Pere Marquette	Feb.	2,114	2,420,123	65,342	2,590,877	311,798	536,601	58,943	1,009,598	2,010,362	77.6	580,515	405,339	394,367	226,868
	2 mos.	2,114	5,112,290	151,066	5,490,447	638,165	1,107,333	123,557	2,085,901	4,140,383	75.4	1,350,064	997,246	841,615	405,696
Pittsburg & Shawmut	Feb.	98	69,969	.....	70,286	9,770	19,624	1,807	20,675	55,236	78.6	15,050	12,632	3,505	—716
	2 mos.	98	142,309	.....	142,914	19,225	36,316	3,684	43,843	111,011	77.7	31,903	26,972	10,154	—506
Pittsburgh & West Virginia	Feb.	136	327,051	.....	344,785	52,361	71,049	15,829	77,087	238,202	69.1	106,583	83,035	94,246	74,976
	2 mos.	136	702,057	97	737,936	107,708	150,611	32,495	158,893	495,414	67.1	242,522	194,118	216,952	141,186
Pittsburg, Shawmut & Northern	Feb.	190	105,861	.....	106,846	11,071	16,137	1,259	33,661	67,870	63.5	38,976	33,532	24,208	13,909
	2 mos	190	226,333	.....	228,220	21,941	33,731	2,291	72,035	141,994	62.2	86,226	75,256	55,393	38,024
Reading	Feb.	1,451	4,230,480	272,465	4,725,269	389,141	1,034,828	67,120	1,962,886	3,599,451	76.2	1,125,818	831,265	730,930	704,683
	2 mos.	1,451	9,246,364	547,065	10,275,651	750,476	2,045,192	138,697	4,090,850	7,323,991	71.3	2,951,660	2,142,095	1,913,804	1,664,407
Richmond, Fredericksburg & Potomac	Feb.	118	409,474	355,551	876,603	66,450	141,012	9,577	321,101	596,613	68.1	279,990	206,998	114,660	79,106
	2 mos.	118	808,697	733,814	1,763,551	134,952	278,279	19,290	677,212	1,222,094	69.3	541,457	401,429	226,643	153,887
Rutland	Feb.	407	173,678	26,900	251,251	28,337	56,937	9,821	131,007	235,382	93.7	15,869	—4,638	—6,832	—43,169
	2 mos.	407	363,503	57,483	532,527	58,538	119,821	20,134	271,952	488,946	91.8	43,581	35	—1,226	—67,109
St. Louis-San Francisco	Feb.	4,820	2,794,451	230,566	3,333,722	511,970	806,309	120,087	1,441,092	3,057,679	91.7	276,043	—36,022	—16,783	—56,655
	2 mos.	4,820	5,990,812	521,449	7,162,771	1,082,409	1,688,967	241,232	3,009,992	6,380,440	89.1	782,331	160,745	217,936	—121,812

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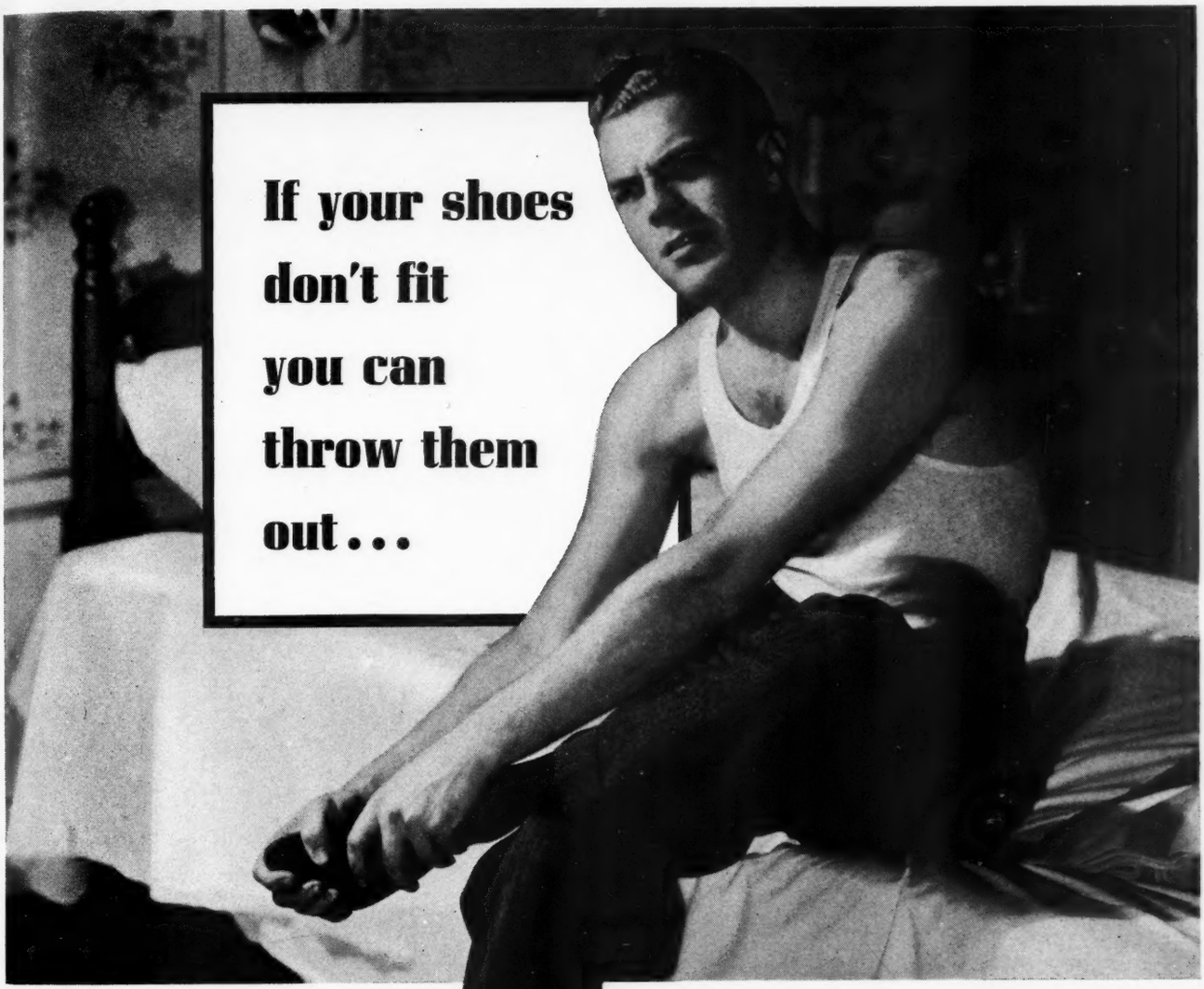

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REVENUES AND EXPENSES OF RAILWAYS

MONTH OF FEBRUARY AND TWO MONTHS OF CALENDAR YEAR 1940—CONTINUED

Name of road		Av. mileage operated during period	Operating revenues: Freight	Passenger	Total (inc. misc.)	Operating expenses: Maintenance of Way and structures	Maintenance of Equipment	Traffic	Transportation	Total	Operating ratio	Net from railway operation	Operating income	Net railway operating income 1940	Net railway operating income 1939
St. Louis, San Francisco & Texas	Feb.	235	$98,156	$491	$103,461	$24,053	$13,030	$7,550	$50,342	$100,840	97.5	$2,621	—$5,302	—$30,503	—$30,240
	2 mos.	235	200,481	876	210,743	49,018	26,906	15,743	160,273	209,903	99.6	840	—15,534	—66,535	—49,690
St. Louis Southwestern Lines	Feb.	1,690	1,529,586	18,409	1,606,465	173,707	227,141	80,615	510,160	1,060,717	66.0	545,748	436,094	306,506	—4,600
	2 mos	1,690	3,031,084	44,983	3,199,745	363,925	480,288	164,136	1,055,977	2,222,636	69.5	977,109	757,186	488,992	69,945
Seaboard Air Line	Feb.	4,314	2,950,705	919,437	4,247,041	523,511	751,973	183,280	1,574,843	3,281,065	77.39	965,976	615,976	456,457	299,966
	2 mos.	4,314	6,234,198	1,833,599	8,822,223	1,033,475	1,559,310	375,733	3,295,008	6,765,951	76.7	2,056,272	1,356,272	994,767	660,979
Southern Railway	Feb.	6,602	6,843,670	650,560	8,123,992	1,076,080	1,445,586	165,839	2,896,247	5,901,799	72.6	2,222,193	1,595,664	1,334,759	872,566
	2 mos.	6,608	14,108,193	1,432,082	16,826,288	2,219,518	2,962,645	335,870	6,017,089	12,190,517	72.4	4,635,771	3,250,143	2,694,570	2,243,151
Alabama Great Southern	Feb.	315	493,777	37,621	570,485	84,777	129,430	13,249	178,044	428,008	75.0	142,477	87,010	100,852	68,776
	2 mos.	315	969,510	81,463	1,130,571	178,060	267,130	27,344	370,380	889,615	78.7	240,956	129,503	144,319	163,701
Cincinnati, New Orleans & Texas Pacific	Feb.	337	1,229,805	133,381	1,448,568	161,571	293,111	31,116	388,890	932,649	64.4	515,919	361,847	378,531	330,126
	2 mos.	337	2,541,921	282,890	2,994,462	343,177	611,645	59,342	816,071	1,947,830	65.0	1,046,632	713,431	756,329	759,327
Georgia Southern & Florida	Feb.	398	134,234	73,344	288,897	33,747	37,426	1,825	92,159	175,306	76.6	53,591	37,462	27,168	28,348
	2 mos.	398	266,651	147,027	455,858	72,411	76,146	3,624	187,429	359,279	78.8	96,579	63,876	44,302	63,755
New Orleans & Northeastern	Feb.	204	218,929	15,486	251,902	33,495	35,238	5,950	76,901	163,956	65.1	87,946	57,807	31,244	8,635
	2 mos.	204	443,358	29,748	508,934	71,501	68,844	11,961	159,327	336,351	66.1	172,583	111,215	63,564	31,901
Northern Alabama	Feb.		Included in Southern												
	2 mos.														
Southern Pacific	Feb.	8,642	9,607,453	1,380,757	11,920,559	1,418,149	2,294,505	359,755	4,702,670	9,530,876	80.0	2,389,683	1,216,331	534,872	—400,029
	2 mos.	8,642	19,962,626	2,867,716	24,841,866	2,899,397	4,748,499	681,370	9,723,992	19,659,141	79.1	5,182,725	2,811,366	1,494,006	568,739
Southern Pacific Steamship Lines	Feb.	.....	648,705	39,958	725,371	15,367	105,407	19,755	506,906	661,220	91.2	64,151	42,216	41,271	26,741
	2 mos.	.....	1,379,488	52,601	1,505,310	30,896	210,986	39,261	1,025,950	1,336,799	88.8	168,511	125,271	122,216	34,100
Texas & New Orleans	Feb.	4,416	3,130,015	252,094	3,657,699	508,414	635,088	130,934	1,225,230	2,700,075	73.8	957,624	644,450	362,260	274,180
	2 mos.	4,416	6,370,888	526,112	7,459,871	1,042,069	1,273,954	253,105	2,528,071	5,509,635	73.9	1,950,236	1,318,454	767,507	593,903
Spokane, Portland & Seattle	Feb.	948	563,431	20,306	632,201	78,009	81,729	10,143	246,505	443,059	70.1	189,142	119,514	76,912	3,270
	2 mos.	948	1,113,754	51,027	1,273,870	157,512	171,052	19,821	513,423	918,452	72.1	355,418	210,638	123,081	62,449
Tennessee Central	Feb.	286	202,019	4,404	218,028	36,114	32,928	6,845	77,409	162,721	74.6	55,307	41,290	22,805	1,782
	2 mos.	286	428,140	10,297	462,755	68,172	67,357	13,312	161,704	329,531	71.2	133,224	99,859	63,646	26,588
Texas & Pacific	Feb.	1,936	1,745,457	162,236	2,083,723	237,461	346,295	74,038	664,304	1,434,588	68.8	649,135	486,485	397,197	331,931
	2 mos.	1,936	3,482,313	356,311	4,198,743	478,300	743,785	151,227	1,364,094	2,968,921	70.7	1,229,822	909,260	715,984	668,302
Texas Mexican	Feb.	162	50,051	970	62,701	8,867	8,928	2,964	28,330	54,721	87.3	7,980	2,176	—1,384	3,527
	2 mos.	162	104,849	1,273	132,755	20,643	17,478	6,112	58,115	113,653	85.6	19,102	7,469	—517	—6,959
Toledo, Peoria & Western	Feb.	239	206,462	.....	208,820	43,696	13,680	16,835	43,529	128,013	61.3	80,807	56,309	40,548	13,124
	2 mos.	239	388,299	43	393,319	78,396	29,360	34,465	90,233	252,931	64.3	140,388	96,727	65,020	35,176
Union Pacific System	Feb.	9,898	9,209,535	966,837	11,164,108	1,017,795	2,381,670	368,990	4,218,673	8,652,442	77.5	2,511,666	1,177,627	585,204	206,248
	2 mos.	9,898	19,279,633	2,274,478	23,634,909	1,842,074	4,581,826	781,288	8,924,671	17,501,933	74.1	6,132,976	3,458,136	2,209,374	1,550,271
Utah	Feb.	111	68,547	.....	68,684	6,916	20,991	474	22,263	54,806	79.8	13,878	4,487	8,944	15,921
	2 mo.	111	187,504	.....	187,927	18,545	58,317	909	52,789	138,975	74.0	48,952	24,225	24,011	23,069
Virginian	Feb.	639	2,042,802	2,527	2,094,179	169,604	392,093	24,703	320,827	941,006	44.9	1,153,173	853,173	902,769	709,279
	2 mos.	639	4,210,826	5,209	4,313,193	323,228	779,499	51,439	654,887	1,875,858	43.5	2,437,335	1,812,335	1,899,300	1,518,681
Wabash	Feb.	2,409	3,187,748	173,782	3,627,692	417,423	663,159	143,932	1,496,744	2,875,376	79.3	752,316	522,463	179,567	—9,495
	2 mos.	2,409	6,561,243	397,002	7,523,945	848,191	1,293,227	290,693	3,125,100	5,880,838	78.2	1,643,107	1,180,661	495,270	165,473
Ann Arbor	Feb.	294	323,562	1,169	332,393	23,140	78,871	12,917	151,149	277,846	83.6	54,547	32,760	19,228	—12,533
	2 mos.	294	648,665	3,190	666,852	46,726	150,091	27,569	307,821	556,050	83.4	110,802	66,647	43,906	20,111
Western Maryland	Feb.	859	1,495,771	5,416	1,562,874	188,715	321,242	40,378	404,205	1,000,252	64.0	562,622	452,622	452,445	332,243
	2 mos.	859	3,165,917	11,707	3,317,746	364,849	716,925	80,362	867,319	2,123,889	64.0	1,193,857	973,857	976,646	724,078
Western Pacific	Feb.	1,208	968,283	14,120	1,006,573	140,477	218,540	58,276	446,752	917,353	91.1	89,220	7,829	—34,536	—66,831
	2 mos.	1,208	2,123,454	50,116	2,223,690	301,986	438,615	114,976	959,082	1,929,894	86.8	293,796	126,056	—18,219	—37,850
Wheeling & Lake Erie	Feb.	508	1,174,629	18	1,215,731	103,698	262,978	37,597	377,117	813,719	66.9	402,012	248,742	324,113	237,891
	2 mos.	508	2,478,604	18	2,569,632	223,537	576,242	74,582	789,515	1,728,231	67.3	841,401	522,817	683,223	534,586